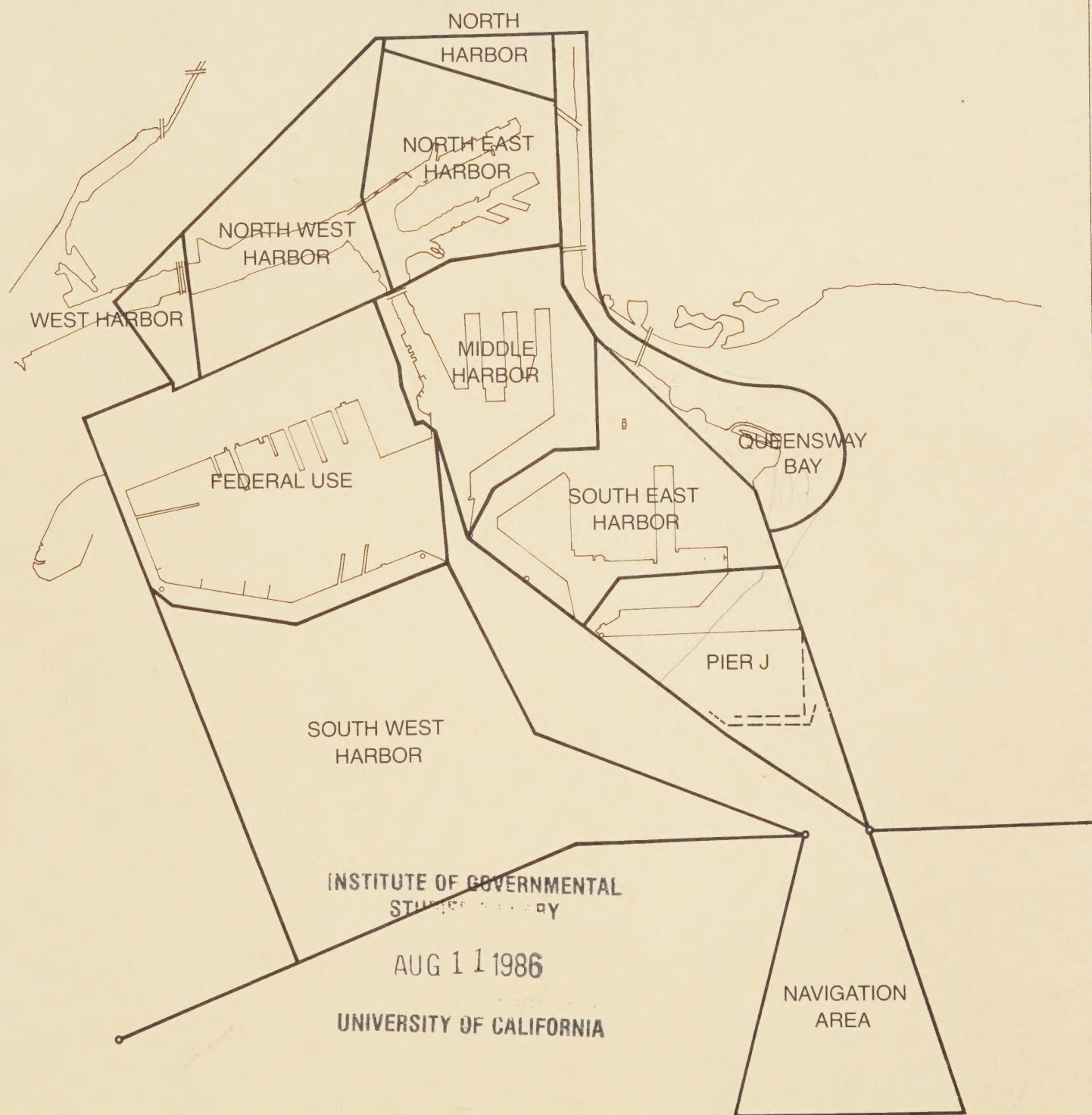


MASTER PLAN



PORT OF LONG BEACH

Final
~~DRAFT~~

PORT MASTER PLAN

AND

ENVIRONMENTAL IMPACT REPORT

Prepared in Accordance with
The California Coastal Act of 1976,
and California Environmental Quality Act,
1970, As Amended and Related State
and Local Guidelines

June, 1978
~~January, 1978~~

PORT OF LONG BEACH, CALIFORNIA



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Board of Harbor Commissioners

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H.E. Ridings, Jr. E. John Hanna
James H. Gray Reed M. Williams

The Port of Long Beach

James H. McJunkin, General Manager
Donald B. Bright, Director of Commerce

Project Officer

Donald B. Bright

Project Coordinator

Barry R. McDaniel

Commerce Division Staff

John Bollinger David A. Rosen
Leland R. Hill Richard D. Sandell
Robert C. Ricklef Steve

Buddy Seidenberg

Student Interns

Byron Buck
Dale Connors
Mike Green

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PREFACE

This document was prepared in accordance with the California Coastal Act of 1976 and the California Environmental Quality Act of 1970, as amended, and the related State and Local guidelines. It consists of a Summary, Introduction, Master Plan, EIR and related Appendices.

*comparing
document
to
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! *expand*
The Introduction contains general discussion on various aspects of Port operations, commerce, trade forecasts as well as discussions on specific issues related to the Port of Long Beach. It is intended that the Introduction will serve to focus basic issues for those reviewing the Master Plan. The Master Plan includes a presentation of Port planning goals and objectives; proposed land and water uses; proposed planning districts with short and long range development prospects; a description of anticipated Port projects; procedures for insuring public participation; and a discussion on the conformance of the Master Plan with Coastal Act policies. The EIR portion of the document is focused on the Master Plan in conformance with the California Environmental Quality Act of 1970, and local and State guidelines, as amended. The EIR is generally consistent with the degree of specificity of the Master Plan. Specific future projects will require subsequent EIR's.

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In preparing this document there were two underlying concerns: 1) the need to provide appropriate introductory materials on the nature, operational mode, and unique characteristics of ports; and 2) the fact that short term or long term planning for ports can not be overly specific - in fact, effective port planning demands simplicity which enhances flexibility.

The attached Port Master Plan only covers a time period of five years. It is not possible to develop a precise, plot by plot or berth by berth plan. There are at least three key issues which preclude developing a precise plan: 1) the Port of Long Beach is a utility; that is, it develops, builds, assigns, leases facilities and/or land both for demand by a given customer rather than building specific facilities for potential leasing or renting to prospective customers; 2) Port trade depends upon national and international trends; therefore, Port planning must be flexible so as to respond to immediate and short term requirements for change in procedures, facilities, etc; and 3) maximizing the use of Port resources only is effective when facilities are versatile, efficient and environmentally realistic.

*Summary
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Since this plan is limited to a timeframe of five years, what about the future? Studies are being conducted on possible designs for additional landfill in the Southwest Basin area, landfill outside the federal breakwater, addition of substrate to subsided areas in the Inner Harbor, etc. All such studies are preliminary and intended to provide basic data to be considered later if the attached Master Plan is amended.

The Coastal Act of 1976 and the California Environmental Quality Act of 1970, as amended, and the related State and local guidelines require the achievement of certain milestones. The general sequence to be followed for this Plan and focused EIR is:

1. Completion of the Draft document and issuance of a Notice of Completion;
2. Circulation of the Draft Master Plan and related EIR in accordance with CEQA;
3. Submittal of the Draft document for informal review by the Coastal Commission;
4. Conducting a Public hearing on the Draft Master Plan and related Draft EIR;
5. Preparation of responses to comments and final revisions to the Master Plan and related EIR;
6. Formal submittal of the Master Plan for approval by the Coastal Commission;
7. Certification and adoption of the Master Plan and related Final EIR by the Board of Harbor Commissioners.

It is intended that reviewers analyze the total content of this document, e.g. analysis of the Plan should include review of the Introduction, EIR and Appendices.

If you have questions or comments, please contact the Director of Commerce, P.O. Box 570, Long Beach, California, 90801 or call (213) 437-0041, extension 269.

SUMMARY

The Port Master Plan is the result of continuing Harbor Department involvement in the process of Port planning, management and development. The Plan was prepared in conformance with the requirements of the Coastal Act of 1976, and represents an effort to consolidate the concerns, recommendations, and requirements of the California Environmental Quality Act of 1970, previous Port policy and planning documents, the City of Long Beach General Plan and the public.

The body of ^{the} ~~the~~ document consists of three basic chapters: Introduction, The Plan, and Focused Environmental Impact Report.

Introduction

The Introduction chapter is intended as a preliminary treatise to provide a clearer understanding of the factors, concerns and assumptions which have influenced the nature and direction of the Port Master Plan. It presents a discussion of Port related issues in five general functional categories which are both independent and interactive in practice: economic, operational, engineering, governmental jurisdiction, and environmental legislation. Coastal Act issues are paramount in providing a "sense of direction" for the Plan and are therefore treated as a distinct section of this chapter.

The Plan

This chapter begins with a brief background discussion of recent Port planning efforts which have culminated in the drafting of the Port Master Plan. The Port Master Plan has been projected on a five year timeframe in response to the need for flexibility and adaptability dictated by political changes, economic fluctuations and evolving technology which shape land use policy in the Port.

A set of goals and objectives is outlined with respect to planning, environmental and operational management, and public access in the Port. These goals and objectives evolve from the issues, factors and concerns addressed in the Introduction and are intended to be adaptable to change as needs, experience and knowledge dictate.

Twelve land and water uses have been defined which describe a host of functionally related uses and projects, and differentiate

those functions which for reasons of priority, location, operation, safety or incompatibility have over the years been segregated. They are presented in the text to satisfy the requirements of the Coastal Act, as well as to facilitate the subsequent discussion of planning districts.

The Port has been subdivided into eleven functional planning districts, defined by physical and geographical constraints of land and water areas. These districts were planned to consolidate similar and compatible land and water uses, to encourage maximum utilization of facilities, to improve cargo handling efficiency, to promote multi-company terminal use, and to separate hazardous cargo areas from other areas of the Port. This discussion of each planning district addresses the present setting, the short term planning scenarios, and the long term planning scenarios. Figure 1 is a general area map intended for reference purposes throughout this document.

The section on "Anticipated Port Projects" briefly describes Port projects underway or anticipated to be undertaken in the next five years. Some of these projects are still in the conceptual stages and could be amended, changed or deleted depending on economic, technical or environmental conditions. The projects have been separated into two sets, appealable and non-appealable, as required in the Coastal Act. As subsequent projects become known they will be evaluated to determine which of the above two categories they belong.

In an effort to provide a broad base of information, a high degree of public and agency participation has been encouraged at an early stage in the Master Plan preparation through workshops, tours, and consultation. The "Public Participation and Implementation of the Port Master Plan" section of this text describes this effort. It also outlines the milestones in the approval process which are mandated by both the Coastal Act and CEQA. After certification of the Master Plan by the Coastal Commission, permit authority on all projects will be delegated to the Board of Harbor Commissioners. Appealable projects, if appealed, may be reviewed by the Coastal Commission, which would then have permit authority.

In certifying the Port Master Plan, the California Coastal Commission must find that the Plan conforms to the policies of Chapter 8 of the Coastal Act, and to the policies of Chapter 3 of the Act on appealable projects in particular. A review of how the Master Plan, EIR, and related documentation respond to these policies is presented in the text to facilitate the Coastal Commission's consideration, and to clarify, where pertinent, the intent of the Port to implement the policies of the Coastal Act.

Environmental Impact Report

The Environmental Impact Report addresses the Master Plan, its goals and objectives, specific options for each planning district, and proposed projects in terms of their cumulative impacts on the environment of the Port and its market areas. In accordance with the Guidelines for Implementation of the California Environmental Quality Act of 1970, as amended, the Environmental Impact Report (EIR) accomplishes the following:

- a) Focuses on those environmental effects deemed to be significant or potentially significant;
- b) Insofar as possible, deals with indirect and cumulative effects which could be expected if this plan is adopted; and
- c) Incorporates other documents, which are part of the public record, by reference.

This EIR attempts to anticipate impacts engendered by the scope of the Master Plan as accurately and as fully as is practical in order to provide the public and decision-makers with sufficient information on the environmental issues and considerations pertinent to the Plan. Seven resource categories are evaluated which may be significantly impacted by the Master Plan. These are: soils and geologic hazards, air quality, noise, hydrology and water quality, biological environment, socio-cultural environment, and traffic and transportation. Among these categories adversely impacted, those for which mitigation measures are required include: soils and geology, air quality, hydrology and water quality, traffic and transportation.

Due to the inherent broad nature of the Port of Long Beach Master Plan, environmental impacts must be assessed in a more general and qualitative manner consistent with the degree of specificity of the Plan. More detailed environmental analyses shall be undertaken in the environmental impact reports which will be required for specific project proposals in the future, as these projects become more definitive and as applications for permits are received by the Harbor Department.

Finally, there are several reasons to support the position that the Port is justified in proceeding toward certification and implementation of a Master Plan now.

1. The Master Plan is required by law.
2. Requests for new berths, for additions to existing berth areas and for redevelopment of outmoded facilities have

been received from present and potential tenants. Planning and CEQA action on these requests await adoption of a Master Plan and certification by the Coastal Commission.

3. The Board of Harbor Commissioners is required, by terms of State laws and the City Charter of the City of Long Beach, to operate the Harbor for the accommodation and promotion of commerce, navigation, *fisheries* education and recreation.
4. The Master Plan will provide a framework for future, more detailed planning.



Figure 1

PORT OF LONG BEACH USA

James H. McDunkin, General Manager

P.O. Box 570, Long Beach, California 90801

Telex #65-6452

*Cost, turn
& inland*

INTRODUCTION

SCOPE

As an extension of the requirements of the Coastal Act, the Port has identified and prepared an analysis of issues, elucidating the basic components of the Port Master Plan. In order to provide a clearer understanding of the factors and concerns which determine the nature and direction of the Port Master Plan, an analysis of Port planning issues is presented as an introduction to the Port Master Plan.

While the issues encompassed by this text cover a wide range of subject matter, they represent common threads needed for effective Port planning. The issues are presented in five general functional categories: economic, operational, engineering, governmental, and environmental. These functional categories are both independent and interactive in practice. Therefore, an attempt is made in the discussion of these issues to weigh and balance opposing issues in assessing their relative impact in "shaping" the Port Master Plan. The analysis addresses issues in past, present and future perspectives, and discusses the importance of individual issues with respect to the primary function of the Port as a single purpose public utility serving the needs of the maritime industry.

The planning issues contained in the Coastal Act provided a "sense of direction" for the preparation of the Port Master Plan, and the identification of these issues is treated as a separate and distinct part of the Introduction. The issues addressed include the legal basis for the Port Master Plan in the Coastal Act and the relationship of the Master Plan to the Local Coastal Program. An extensive discussion of the conformance of the Master Plan with the Coastal Act is included in the subsequent chapter which deals with The Plan.

ECONOMIC

The Port of Long Beach is an essential element in an economic framework which fosters and supports maritime industry activities on a broad scale. It represents one of the state's primary coastally dependent economic resources. The Port is instrumental in facilitating commerce involving trade and commodities throughout an extensive market area, and the services and facilities which it provides, directly and indirectly, benefit the economies of the City of Long Beach, the County of Los Angeles, the southern California region, the State of California, the Nation and certain international areas. On an international level the Port provides a channel for trade which facilitates the balance of payments, exports and imports throughout the world. The following sections address some of these economic issues and how they influence Port planning.

Trade Forecast Methodology and Market Expansion

The growth of the Port of Long Beach is directly related to the increase in cargo imported and/or exported. The determination of future Port facility demand is achieved by projecting changes in diversity of commodity markets. As in the case of all predictions, the methodology of "forecasting" is highly judgmental.

Projections are based on historic patterns of operations within the Port, generally on a commodity-by-commodity basis. The projections are then refined using such factors as the international economic situation and the demand for raw and finished goods; the U.S. need for foreign and domestic energy resources; local, regional, and "hinterland" requirements for waterborne imports and exports; etc. The technical methodology generally includes time series trends, multiple regression analyses, and simulation modeling. It is intended that such statistical evaluations will yield a reasonable prediction estimate with defined upper and lower ranges.

It should be noted however, that the main intent of any trade forecasting model is to reveal direction, magnitude and range, not specific quantities of given goods expected to be handled. Also, forecasts are inherently deductive in nature; that is, they provide an estimate of port-wide trade performance based on the general climate of large economic segments -- greater entities than just the Port of Long Beach.

Selecting a forecasting methodology and necessary assumptions varies according to the timeframe being evaluated. Therefore, the "effective" life of projections and forecasts are of short duration.

Adjustments must be made on a continuous basis. It is fairly reasonable to make planning decisions on the basis of the highly probable, expected, short term changes in commodity-flow structure, but the long term expectations become less focused. Limiting the flexible arrangement of land and water uses now practiced by the Port would severely hinder the ability to respond to marketing and technological changes. However, this is not to say that projected Port expansion scenarios cannot be described and evaluated with some degree of accuracy.

Development of scenarios is based on two sets of parameters. The first is specific requests for new facilities from the Port's tenants. Such requests can be considered fairly reliable for short term planning. The second is by projections of the Port's commodity flow trends; these are usually much less reliable for long term planning options. These scenarios are discussed below for short and long term forecasts.

Short Term Forecasts

Requests for new facilities provide a positive basis for short term expansion. Usually, the user of the proposed facility experiences a demand due to growth of a particular trade, or development of a new market. However, if the requests for new facilities are formulated independently rather than interdependently between users of similar facilities within the Port, overestimation of actual demand may result. The Port is aware of this situation and acts accordingly to correct the problem in its "landlord" role. Should a request for duplicate facilities occur, the Port strives to encourage several operators to "pool" their resources and develop a consolidated facility that maximizes coastal and port dependent resources. If facilities are constructed for a given commodity and the market for the commodity diminishes, sufficient flexibility is built into the facility to allow alternative uses.

Long Term Forecasts

Speculative projections of commodity flow trends based on forecasts for one to five years can be made with reasonable confidence. These projections have in the past provided a sound basis for planning facilities which accommodate the more "stable" commodity trades. Projections attempted beyond this timeframe are more susceptible to contradiction, especially when one considers the highly volatile nature of the international economic situation.

For example, based on the direct extrapolation of historic data, the Port of Long Beach's share of San Pedro Bay commerce (Los Angeles-Long Beach) will increase dramatically to 72 percent by the year 2000, from the current share of approximately 48

percent. This increase assumes the continued stability of total tonnage moved through the Port of Los Angeles. A more reasonable assumption would be that the ports of Los Angeles and Long Beach would both compete more effectively in the future. Linear projections of past trends are justifiable only if the analyst has grounds for believing the future will be very much like the past. Additionally, the validity of the projection can be questioned because the data base timeframe is not significantly longer than the future forecast period. The Port of Long Beach experienced major physical changes during the forecasting base years 1950-1976, and was subjected to a rather important marketing phenomena. In this period, the Los Angeles-Long Beach harbor complex expanded from a predominately "domestic coastal exporter" to a "foreign importer and exporter".

Attempts have been made to increase the degree of accuracy of commodity flow projections, primarily by modifying the basic "linear" model. This so-called "modified trend" method alters the linear approach in two important ways. First, historical data used to derive the trend line are extended further into the past, expanding what is called the "back-casting" period. Second, the growth rates are arbitrarily scaled down beyond a ten year projection. Oddly enough, the larger data base evolved an even greater rate of growth, resulting in higher projections than the basic linear model for later years, despite the scaled down rates.

The "ratio" method is based on the assumption that trade between the Port and its market will be affected by the same set of circumstances that affect United States foreign and coastal trade as a whole. U.S. trade is projected forward at its historical rate of growth, while the Port's share of this total was estimated to increase slightly. This is consistent with the trend since World War II, primarily because the Port's hinterland (Southwestern U.S.) has shown more rapid growth than the U.S. as a whole.

The "gross regional product" (GRP) method simply describes the Port's trade growth as a direct function of the projected growth of its hinterland. For purposes of this estimate, the hinterland was defined rather narrowly as southern California, rather than the Southwestern U.S. The tonnage of the Port is assumed to be a predetermined fraction of the GRP of southern California (based on historic trends).

The original, basic linear trend analysis is most conservative of the above methods. Comparing the linear trend model with the modified trend, ratio, and GRP methods of forecasting, the former yields a small anticipated increase in tonnage. The other methods show a greater increase. Even though the linear trend analysis lacks the sophistication of the other methods, its lower estimated increase parallels past efforts. It therefore should provide a reasonable, but conservative base for planning purposes.

However, none of the above mentioned methods of forecasting account for the possibility of unforeseen major shifts in economic policy. For this reason, the projections are obviously less reliable as the forecasting period lengthens.

An important component of the historic Port tonnages on which the linear trend model is based is petroleum. During fiscal 1975-1976, petroleum accounted for nearly 60 percent of the total commodities handled in terms of tonnage. Based on the expected influx of Alaskan crude oil, this figure would be expected to increase substantially, making the Port of Long Beach a focal point for a much greater market area than its historic hinterland. Any major shift in energy resource demands could result in the Port becoming a shipping point for coal energy producing centers.

The very sensitive nature of energy resource economics adds to the difficulty of evaluating projected growth in the Port. The Port is continuing to monitor the energy supply and demand relationship as it relates to not only West Coast consumption, but also to the use of the southern California area as an "energy window" for the rest of the U.S. The additional influx of outer continental shelf (OCS) and Elk Hills crude oil along with continued imports of foreign supplies also will be monitored to determine the need for facilities in the Port to handle these resources.

Determining future requirements for these types of projects is extremely problematic. Although petroleum accounts for over half of the present Port tonnage, it does not require the majority of acreage within the Port jurisdiction. For this reason, preparing and justifying a planning model based on total tonnage of commodities would be irresponsible. Since individual commodity trade also is difficult to forecast, the safest analysis of growth in the Port is a composite approach based on the general trends of regional, national, and international economic conditions.

All the above noted methods of analysis support the conclusion that additional berth areas and backland will be required to handle projected increases in trade. By continually updating short term forecasts, the Port of Long Beach can evaluate its development potential from a more secure, informed position.

Commodity-Related Land Use Requirements

The commodities handled by the Port of Long Beach can be expressed in generally three categories: general cargo, dry bulk, and liquid bulk/petroleum. What follows is a brief discussion of each of the three categories, together with an analysis of the anticipated future facility requirements.

General Cargo

General cargo is a broad category that encompasses break bulk, neobulk, containerized, Ro/Ro and heavy lift commodities. Due to their unique handling characteristics, each of these categories is described below.

Break Bulk

Although a great deal of attention has been given to the change from break bulk (i.e., cargo in packages, small enough in size and weight to be handled by an individual) to containers, there will still continue to be a need for the break bulk type operation, especially along foreign trade routes destined for underdeveloped countries. Many foreign port operations are significantly more labor intensive, utilizing manpower to load and unload the break bulk ships. These ports are often physically constrained in terms of efficient truck and rail traffic, a necessary requirement for the intermodal transfer of containerized or neobulk cargo. In addition, many of these foreign harbors lack the necessary unloading equipment (gantry cranes, straddle carriers or transtainer equipment). Although there is still a significant investment in conventional vessels, the trend is definitely toward conversion to containerized or other forms of specialized handling. There will always be a demand for these types of facilities, but the existing operating berths for break bulk general cargo should prove sufficient for future needs.

Neobulk (Unitized)

Neobulk cargo, such as truck-size lots of lumber, paper, steel, and automobiles can sometimes be handled at berths designated for break bulk cargo. In most cases, however, a large, open backland area is needed to expedite the intermodal transfer (vessel to dockside to truck or rail) of such cargo. Annual tonnages of most of the neobulk cargoes are expected to increase, requiring additional acreage. Where feasible certain neobulk cargoes, such as automobiles, will be shifted to inland marshalling areas after unloading so as to free primary berthside marshalling areas for essential berthside operations.

Ro-Ro

The number of Ro-Ro vessels has increased in recent years. These types of vessels can usually be accommodated at existing wharves with the addition of ramps at an existing berth. Generally, these vessels carry containers as well as so called roll-on/roll-off equipment and cargo, requiring ramps for unloading. Thus, the name Ro-Ro was derived. The roll-on/roll-off cargoes require considerable backland, but not to the same extent as exclusive containerized cargo operations.

Heavy Lifts

Certain types of cargo, because of various conditions including size, shape and/or weight, require special ships, handling equipment and/or backland to facilitate loading, unloading, wharfage, and upland transport. These cargoes may consist of large industrial components, machinery, equipment or materials which are imported or exported on a relatively infrequent basis, or they may consist of containers whose contents must be handled with special care and cannot be accommodated at usual container facilities. This type of cargo represents a small proportion of present tonnage.

Containerized

The use of containers to ship cargo formerly handled by break bulk methods presents many advantages. It permits increased vessel utilization and overall efficiency, due to the highly mechanized nature of the operation. It also offers increased protection against loss and damage of cargo. A properly engineered container terminal can handle from three to five times the amount of cargo that a conventional break bulk berth can.

The Port has a variety of container-related leasing arrangements with its tenants. For example, a berthing complex may be leased to a particular steamship company, which may handle cargo for other shipping lines. When more than one line uses a facility, there must be some degree of separation of operations and cargo in the marshalling yard.

In addition to the area required for marshalling containers, space must be provided for aisles, fire lanes, aprons and wharf, freight station, maintenance garage, office and truck operations, buildings, scales, access roadways, and railroad trackage. Based on standards of the American Association of Port Authorities (AAPA), the gross land area requirement for a one berth container terminal is twice the area needed for actual container storage. For multi-berth terminals the additional area requirements are somewhat less due to the overlap of support areas.

The expanding market area for container cargoes in recent years increased the need for additional berth areas and backlands to handle projected container volumes in the future. Two techniques developed to facilitate container operations are "overland common point" (OCP) and "Mini-land-bridge" (MLB) shipping.

OCP movements include through service between ports and inland

destinations. MLB provides service between West Coast ports and Gulf and East Coast ports via rail, rather than all water routes. Faster transit times and cost savings are the primary factors encouraging development of these methods. The Port of Long Beach is expected to handle increasingly significant volumes of OCP and MLB tonnage, especially in response to anticipated global trade imbalances.

In theory, some of the required land area could be provided by conversion and/or redevelopment of existing land within the Harbor District. However, the existing land configurations of the Port, and the requirements for a large, contiguous area for container operations, necessitate some development of new lands. This land will be used in combination with the reclaimed and redeveloped land in order to meet the overall needs for berth and backland facilities.

Dry Bulk

Dry bulk cargo terminals are generally designed to handle several commodity types. Within the Port at present, operations are segregated to accommodate such raw materials as coke, coal, etc., (black bulk); potash, soda ash, salt cake, salt, gypsum, etc., (white bulk); and grain, scrap (non-ferrous and ferrous). The economic advantages of bulk handling relate to the faster transfer rates available via bulkloading equipment, the elimination of small quantity packaging, and the use of large bulk carriers. The landside storage requirements for each terminal are based on such factors as the characteristics of the commodity (e.g., perishable grain requires a closed storage structure); the environmental characteristics of the material (e.g., particulate matter controls for coke); the loading/unloading and throughput rate established; the intermodal transfer method; and quantity of material handled. Therefore, space requirements are developed on a project by project basis.

Liquid Bulk

Liquid-bulk accounted for approximately 60 percent of the total Port tonnage during fiscal 1976-1977. Of this total, crude petroleum and petroleum products constituted 99 percent of all liquid cargoes handled. A variety of other liquids constitute the balance with molasses principal among those handled.

The mooring, docking, and wharf facilities for tankers and barges are relatively simple, since there are no requirements for warehouses or extensive cargo handling equipment. The vessels are loaded and unloaded via pipelines, terminating at nearby storage/surge tanks. The location of these tanks depends upon the quantities of products transferred, ship loading/unloading rates,

throughput rates, and the distance to the first processing facility. For example, approximately 65 percent of the bulk petroleum handled in the Port (crude oil) is transferred to local refineries. The most "land-efficient" method of handling petroleum would be to eliminate the need for storage/surge tankage within the Port transferring the material directly from the vessel via pipeline to the refinery or use point. This however, is seldom the most "cost-efficient" or "energy-efficient" method.

Ship unloading rates are governed by onboard pump characteristics and related shoreside pipeline capacity. This equipment cannot normally transfer large volumes of petroleum long distances at relatively rapid rates.

As is the case with any other cargo vessel, excess time spent at the berth is uneconomical. Efficient vessel "turn-around" times are desired because of rapidly escalating costs of operation. For these reasons, at least a portion of the onshore tankage is normally situated adjacent to the vessel, allowing the high volume low pressure onboard pumps to quickly offload the cargo. The large volumes of petroleum unloaded can then be transferred to the inland use site at rates more consistent with physical restrictions of the pipeline as well as daily refinery requirements. This thereby "frees" the vessel from unnecessarily remaining at the berth. Selected facilities are also used for loading and unloading of petroleum products.

Because of the highly variable nature of petroleum import and export markets, and the requirements for transportation and disposition of supplies from the outer continental shelf (OCS), Alaska etc., overall facilities planning is a multi-variant task. The Port of Long Beach has, however, undertaken an energy supply and demand analysis in order to investigate the implications and requirements of crude oil movement into California. Included in the assessment are a projected range of total energy demands for California, estimates of potential supplies of fuels available to the state, and an evaluation of the West Coast, California and Petroleum Administration Defense District V capacity to absorb Alaskan North Slope crude. Hopefully, these data will aid the Port in facilities planning over both the short and long terms.

Current planning for petroleum operations includes the planned transfer of existing facilities to the Outer Harbor area, along with the location of new berths; setting aside of deep water areas of the Port for the use by deep-draft petroleum tankers; minimizing distances and associated queuing problems in the Port by tanker traffic; and maximizing the distance between hazardous cargo handling areas and local residential and commercial populations.

Port Market Area

Although the Port provides access to local and regional markets through its various intermodal cargo transfer systems, the great majority of its commerce is national and international in nature. Of the 32.8 million revenue tons of cargo moved during Fiscal 1976-1977, 23.6 million tons, or almost three-quarters of the total, was foreign commerce. The ten leading trading countries were Japan, Indonesia, Iran, Ecuador, Taiwan, Hong Kong, Korea, Netherlands, Nigeria, and Mexico (Figure 2).

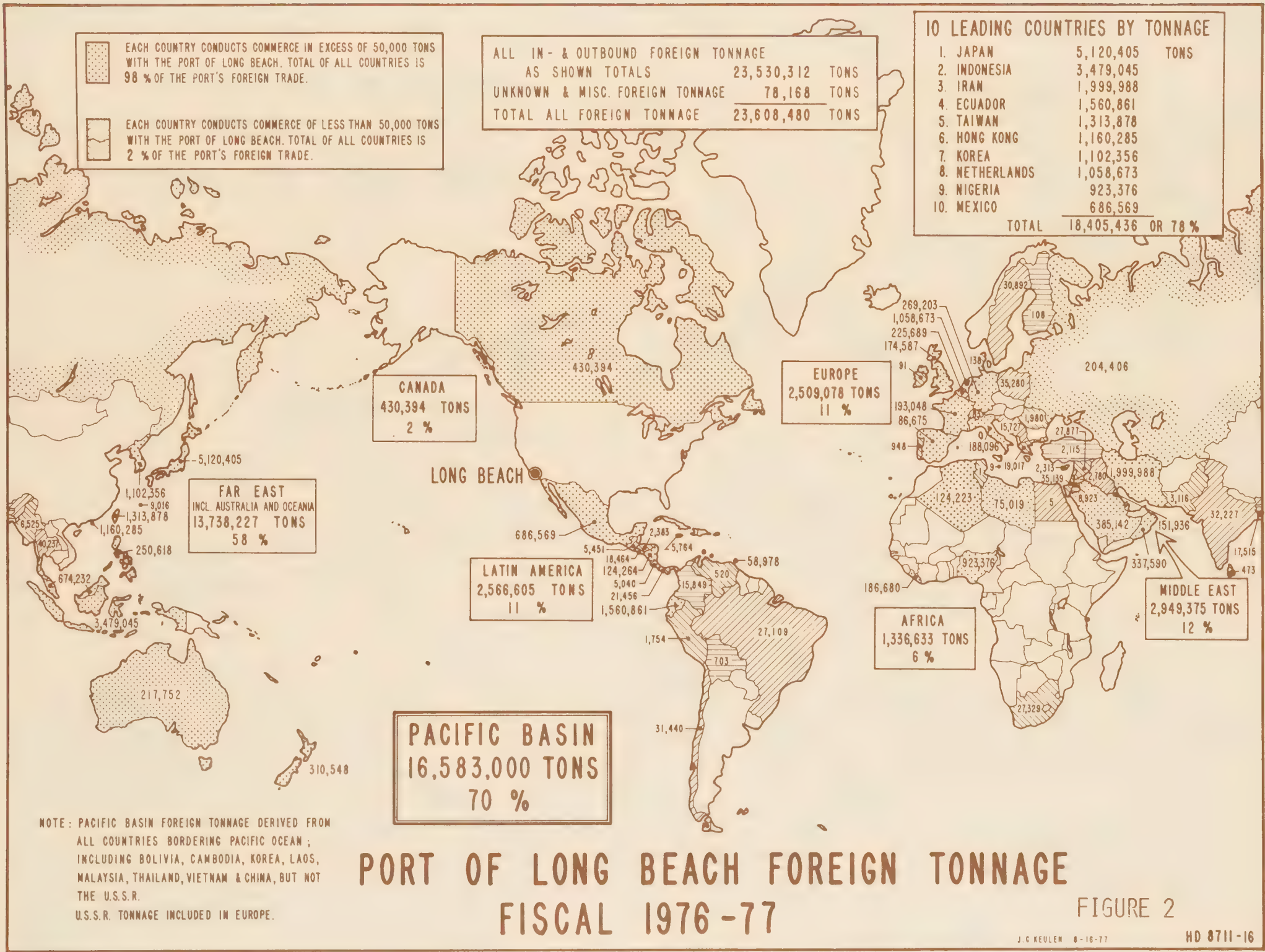
Additionally, the Port's traditional market "hinterland" has expanded beyond the historic Southwestern United States service area with the advent of certain types of new shipping practices. (see Figures 3 and 4). Overland common point (OCP) and MLB systems provide for intermodal transportation of cargoes from Pacific Basin Ports, through West Coast ports to distant inland points, far beyond the previous geographic boundaries of commodity diffusion from the Port of Long Beach. Included in OCP movements is through container service between the Port and various inland locations. MLB connects Long Beach with Gulf and East Coast ports via rail, rather than by all water routes. Faster transit times and related costs savings are the primary factors which make these systems popular.

As far as increasing the size of the Port market area, the Port is expected to continue the majority of its trading with Pacific Basin countries with gradual increases in trade with the People's Republic of China and the USSR. MLB and OCP will become more important as shipping costs increase, also, coastal traffic between western sources of crude oil (OCS and Alaskan) and West Coast ports will substantially increase during the next five years.

In summary, the Port's primary purpose is to provide a link between commodity sources and the markets they serve. These markets are no longer based in the local southern California area, but in fact, are international in nature due to major shifts in the type of commodities handled, increased raw material demand by U.S. and foreign industries, and deliveries of foreign sources of energy supplies.

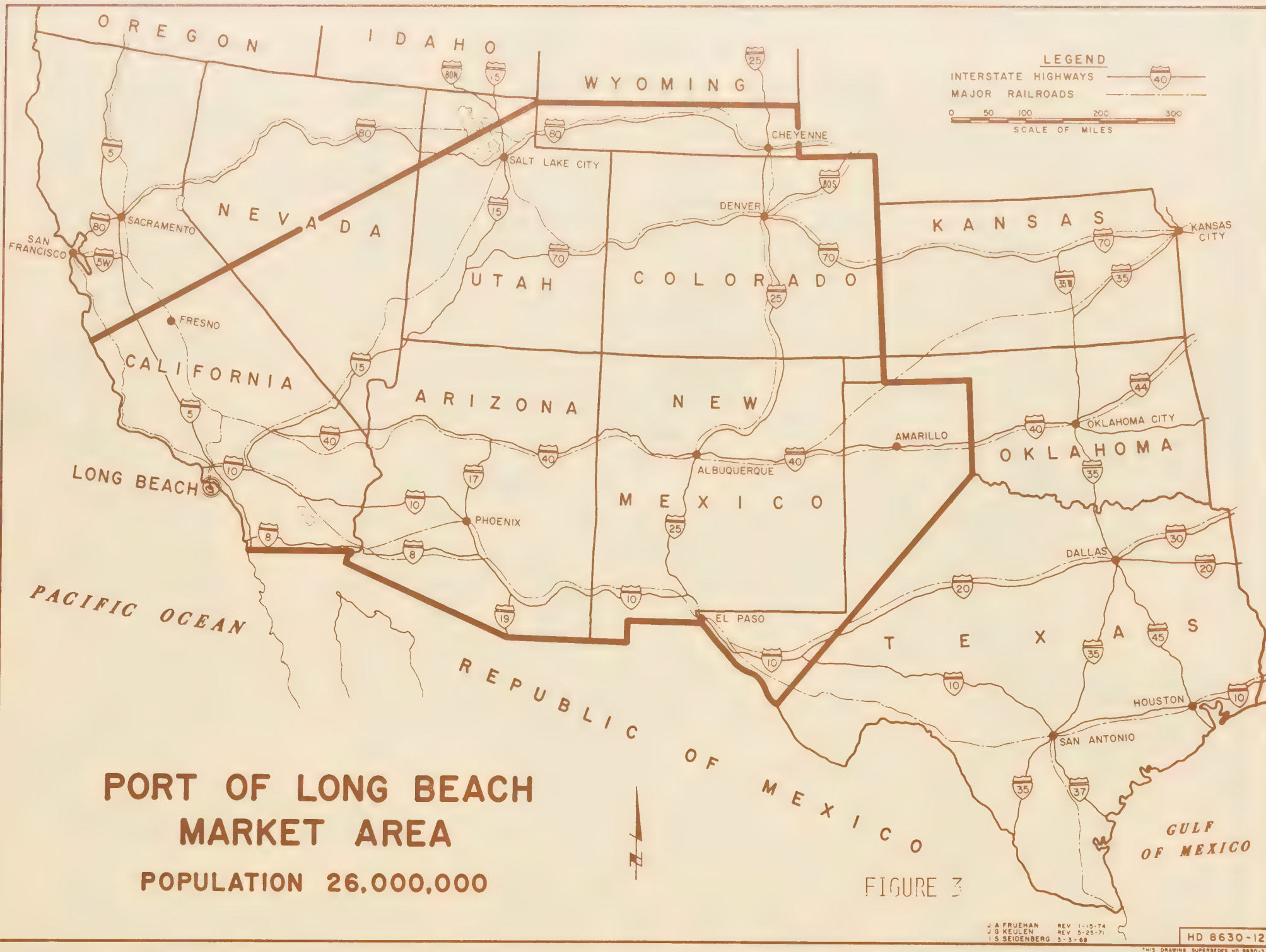
Foreign Trade Zone

The concept of a foreign trade zone near the Port of Long Beach is being viewed with increased interest by Port planners and decision makers. The prospect for the establishment of such a zone must be seriously considered as an element in the overall planning for Port development. A foreign trade zone (FTZ), is a customs supervised area declared by the U.S. Foreign Trade Zone Board as being outside the territorial constraints of the United States of America for the purpose of promoting duty-free activities.



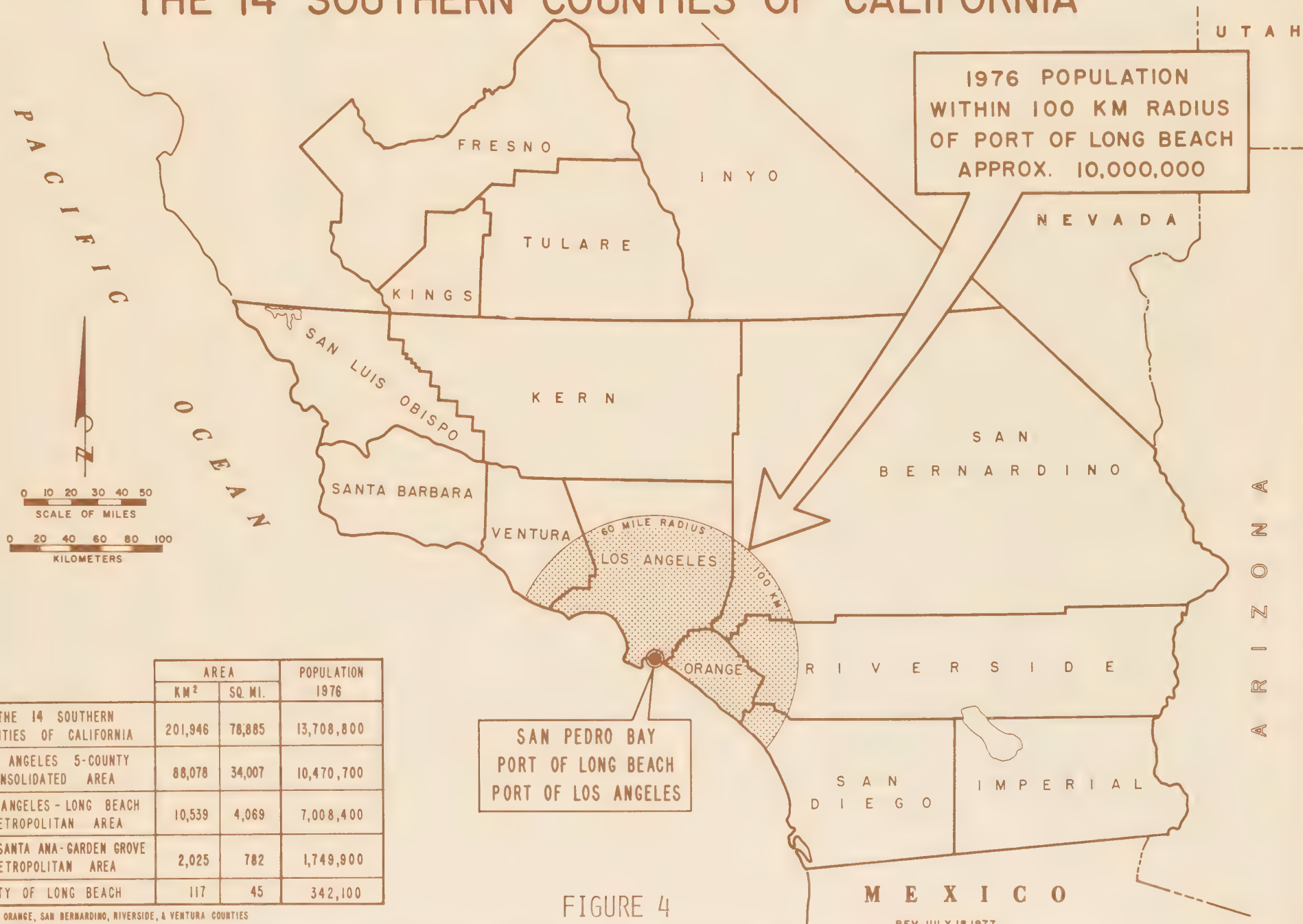
PORT OF LONG BEACH FOREIGN TONNAGE
FISCAL 1976-77

FIGURE 2



THE PORT OF LONG BEACH

THE 14 SOUTHERN COUNTIES OF CALIFORNIA



	AREA		POPULATION 1976
	KM ²	SQ. MI.	
THE 14 SOUTHERN COUNTIES OF CALIFORNIA	201,946	78,885	13,708,800
1. LOS ANGELES 5-COUNTY CONSOLIDATED AREA	88,078	34,007	10,470,700
2. LOS ANGELES - LONG BEACH METROPOLITAN AREA	10,539	4,069	7,008,400
3. ANAHEIM-SANTA ANA-GARDEN GROVE METROPOLITAN AREA	2,025	782	1,749,900
CITY OF LONG BEACH	117	45	342,100

1. LOS ANGELES, ORANGE, SAN BERNARDINO, RIVERSIDE, & VENTURA COUNTIES
2. LOS ANGELES COUNTY
3. ORANGE COUNTY

FIGURE 4

REV. JULY 18, 1977
J.G. KEULEN JAN. 30, 1974

HD 8-12B

Within an FTZ, non-prohibited foreign imports or exports may be stored, exhibited for sale, processed or used in internal manufacturing operations without being subjected to customs duties and quotas until the goods or their products leave the FTZ for consumption in the United States. A zone may constitute anything from a warehouse building to an enclosed and secured industrial park covering many acres. A zone may consist of a single site, or several non-contiguous sites, and in some restricted cases sub-zones covering single firms in order to prevent the need for relocation may be declared.

An FTZ application may be granted to public or private corporations as defined in the Foreign Trade Zones Act, as amended. However, preference is given to public corporations. The act also specifies that each port shall be entitled to at least one zone.

Among the advantages and benefits of an FTZ are the following:

- They encourage operations in the United States that would otherwise have been conducted abroad for customs reasons.
- They help to create employment, not simply to divert it from one region of the country to another.
- They facilitate the duty-free removal and shipment of imported goods abroad which may not be marketable in the U.S.
- They enable the avoidance of customs duties on damaged or substandard materials.
- They provide added security and protection for merchandise.
- They provide for the storage, duty-free, of seasonable goods and thereby improve availability.
- They enable buyers to inspect goods before purchasing them.
- They improve cash flow by postponing payment for goods until they leave the zone, and by facilitating the partial withdrawal of merchandise as needed, and by allowing the order of goods before payment.
- Goods may be insured while in storage for their value exclusive of duty and taxes.
- Goods may be processed or manipulated to qualify for lower duty or freight charges.
- Goods may be re-labeled, remarked, or altered to meet federal or state requirements.
- Indefinite storage in the zone may be undertaken to await the best market conditions.

- Borrowing on goods stored in the zone by negotiable warehouse receipts can be permitted.
- Certain overhead costs of office or employees for brokerage can be avoided.

The potential attraction of industries into the FTZ provides incentives for the Port and the City of Long Beach to develop such a zone to generate a new local source of employment and enhance the tax base. But before the development of this zone can be implemented it is necessary to determine its feasibility, to establish how it is to be financed, to plan the layout and siting of the zone, to obtain letters of intent from firms wishing to utilize the zone, to assemble data on management and procedures to be applied to zone operations, to consider the future viability and expansion of the zone, and to otherwise comply with the requirements of the Foreign Trade Zones Board and relevant laws.

OPERATIONAL

The functional management of the Port on a continuing basis is conditioned by administrative policies and regulations, particular service requirements, changing demands for facilities, technological trends, and the needs of various land uses in the Port such as Primary Port, Oil Production, and Recreation. While the primary function of the Port is to serve the maritime industry in the fields of commerce, navigation, fisheries, recreation and education the Port's commitments to the City of Long Beach and the legislative mandates of the Coastal Act and the California Government Code present other operational issues with respect to Public Access and Recreation which must be considered. These issues are therefore included in the following text as significant operational issues considered in the development of the Master Plan.

Tariff No. 3

The Long Beach Harbor Department operates under Tariff No. 3, which lists the rates, rules and regulations governing the Port's activities as a public utility. Revenue for the Harbor Department is generated from the fees charged for the use of Port facilities. Such fees include: dockage, the charge that is assessed a vessel for berthing at or making fast to a municipal berth; wharfage, the charge assessed against all merchandise for the use of wharves or wharf premises; demurrage, the charge against merchandise remaining on the wharf after a designated period of time (usually 7 or 10 days); wharf storage, the charge for merchandise stored within available space; rental or area assignments, the charges for use of wharves, sheds, etc., on a short term or long term basis.

General rules and regulations within the Tariff govern activities in the Port. These rules cover such things as navigation, anchorages, dumping or discharging into water, special handling of hazardous cargoes, and safety regulations. While the Harbor Department maintains a security force, enforcement is also accomplished by other governmental agencies; for example, the Long Beach Fire Department, U.S. Coast Guard, and U.S. Customs.

Property Management

The Harbor Department has a rather unique role in the management of the Port of Long Beach. First and foremost, under the provision of the Tidelands Grant and the Long Beach City Charter, the Harbor Department is responsible for all development occurring on all federal, state, county, municipal and private lands within the

boundaries of the Port of Long Beach (see Figure 5). The other major role of the Harbor Department is to act as a landlord for all Port property occurring on municipal lands.

In its first capacity, the Port provides general planning and coordination to insure that the Port area, as a whole, is developed consistent with various regulatory, planning and environmental legislation. Included in this coordination is the evaluation of new projects and plans and how they impact various elements of the Port such as transportation corridors, land and water use, and compatibility with surrounding Port activities.

Although the Port has no regulatory authority over the Naval activities on Terminal Island, nevertheless, the Port and the Navy have a constant interchange of ideas regarding activities relating to their respective planning areas.

With respect to privately owned lands, the Harbor evaluates all new projects under CEQA and encourages land owners to develop facilities that are consistent with Coastal Act policies through its permit management authority.

There are basically two methods for managing a port-owned facility. The first is where a port is actually involved in the day to day terminal operations of each of the facilities including crane and warehouse operations, longshore services and equipment. This, however, is not the method used in managing Port of Long Beach facilities. The Long Beach Harbor is considered to be a non-operating port. That is, Port owned lands are made available by leases, consignments, etc. to various tenants who in turn provide facilities and services for the shipping industry. This "landlord" role of the Port allows for flexible movements of Port tenants depending on their land use and berthing requirements.

Pilot Service

The Harbor Department of the City of Long Beach maintains a force of municipal pilots, pursuant to a contract with an independent pilotage contractor, to perform the service of piloting vessels within, into and out of the Port of Long Beach. Any vessel entering, leaving or shifting within the Port may request the services of and be piloted by a municipal pilot.

Jacobsen Pilot Service has been the contracted pilot for the Port of Long Beach since 1923 when the Port was little more than mudflats. The Harbor Department recently renewed Jacobsen's contract for pilotage services until 1987.

The contract with Jacobsen requires that all pilotage shall be performed in accordance with all applicable rules of navigation and regulations imposed by the United States Government, or any

governmental agencies having jurisdiction over Port navigation and safety. Jacobsen shall comply with all applicable laws, ordinances, and regulations enacted by federal, state, city or other governmental bodies or departments.

The two agencies that have authority in the Port with regards to navigation are the Harbor Department and the United States Coast Guard Captain of the Port. The Captain of the Port has the ultimate authority regarding matters of navigational and operational safety. By advice and information from vessels agents, marine exchange, marine terminals and the pilot station, the Operations Division of the Harbor Department is kept aware of vessel movements, arrivals and departures, and any unusual operational problems regarding vessel and cargo movements. In matters involving Port safety considerations, under the authority of the General Manager of the Harbor Department, the Operations Division may intercede and confer with vessel officers, terminal operators, and/or shipping agents as to the procedures to be followed during the vessel's visit to the Port.

The Port Pilot must adhere to all tariff items concerning navigational safety outlined in the Port of Long Beach Tariff No. 3. These tariff items specify and include such items as the duties and responsibilities of the Pilot and the ship's Master, the types of vessels that are subject to pilotage, the basis for computing pilotage charges, the regulations regarding the movement of ships in the Main Channel and turning basins, the handling of mooring lines, and the speed of vessels navigating within Port jurisdiction.

In addition to the Port tariff, all vessels must follow the inland rules on the road established by law, and administered by the United State Coast Guard. These are specifically spelled out in the U.S. Coast Guard, Navigation Rules, International-Inland (CG-169, May 1, 1977).

All Jacobsen pilots hold a First Class Unlimited Pilots License issued by the Coast Guard.

Vessel movements in the Harbor, especially those of the larger tanker vessels, are well programmed before any movement takes place. In the case of the larger tankers, first advice of such a vessels arrival in Port is generally received days ahead of the actual arrival. Vessel size, i.e., length, draft, beam, tonnage, type of cargo, and other pertinent factors are researched, and pilotage preparation is made before the vessel arrives. Berth considerations and limitations are evaluated, as well as tidal conditions and movements of other vessels which could effect the handling of the large tanker. The result is careful prior planning for piloting the vessel safely into Harbor and berth. In general, the operational sequence for a tanker vessel arriving, offloading and departing from the Port of Long Beach can be expected to be as follows:

1. Well in advance of vessel arrival (24 hours minimum advance notice required by U.S.C.G.) the vessel's master contacts (by radio or cablegram) the vessels agent ashore, and provides an estimated time of arrival (ETA) at Queens Gate. The agent, usually with the advice of the Municipal Pilot, will arrange for the number of tugboats needed during docking, as well as notify all those concerned of the ETA. This contact includes the Operations Division of the Harbor Department as well as the USCG Captain of the Port.
2. The vessel proceeds into the Precautionary area outside of the Queens Gate and takes the pilot aboard. To do so the vessel may stop in calm waters, or may turn in a wide arc in rough waters to permit the pilot to board from the lee side.
3. Upon boarding the vessel, the pilot will advise the vessel's master regarding control of the helm and engines, and, maintaining direct radio contact with the Pilot Station, prepare for vessel entry into the Harbor and/or dock. At this time the pilot will also establish any bridge-to-bridge communications with other vessels as necessary. He will advise the master that the crew should be at docking/anchoring stations and to remain so until the vessel is secured at berth or safely anchored. It should be noted that the master remains at all times in full command of the vessel; he shall continue to navigate and take bearings and soundings, check compass courses, check radar and take all actions necessary to safeguard the vessel under his command. It is the duty of the pilot to place his knowledge of San Pedro Bay at the disposal of the vessel's master. The presence of a pilot on the bridge will in no way relieve the master of his duties.
4. The Pilot Station will keep the pilot on a vessel advised of any condition which would make the transit through the breakwater entrance and to the assigned anchorage or berth an unsafe undertaking; in such a case the vessel movement would be delayed until safe conditions prevail. The Pilot Station is also available to advise the pilot of the position and availability of tugboats and any other information pertinent to the operation at hand.
5. Normally vessels will pass through the breakwater entrance under their own power, with only that speed necessary to assure full steering control. Tugs will approach close to the vessel and make up lines when advised to do so by the pilot who is in bridge-to-bridge communication with the tugboats.
6. If the vessel is temporarily destined for anchorage, the pilot will proceed to maneuver the vessel to the pre-arranged anchorage spot. In this operation, the Pilot Station radar may be used to assist in guiding the pilotage

of the vessel to the point designated, and to check and insure the exact point of anchorage.

7. Before leaving the Pilot Station, the vessel's pilot will be thoroughly briefed as to the exact position of anchorage or berthing. If going to a berth, the vessel will be docked at a pre-determined location. (Correct vessel berthing is pre-arranged either by preferential berth assignment or by a temporary berth assignment given by the Harbor Department).
8. Upon approaching a dock, the vessel will be slowed to a speed necessary for safe maneuvering. Via "heaving" lines and "messenger" lines, the vessels mooring lines are drawn to shore and placed on bollards or mooring devices on the wharf structure. As advised by the pilot, tugboats will push and pull the vessel into position at the wharf, with the vessel winches taking up mooring line slack as needed. Tugs are maintained "made up" to the vessel until all mooring lines are in proper place and secure to the satisfaction of the ship's master. With the vessel in position and made secure at the berth, the tugboats and pilot are released, their duties having been completed.
9. Upon master's command, the vessel's engines are secured or placed on "standby" for the desired in-port condition, and the vessel assumes an "in-port" posture with readiness to get underway as directed by its master.
10. Vessel brow (gangplank) is placed in position and the vessel operations shift to discharging cargo.
11. Grounding cable, utility (water) lines, and cargo discharge arms ("Chiksans") are connected and vessel prepared for cargo loading and unloading. Bills of lading are verified by master, terminal representative (and U.S. Customs, if necessary) prior to commencement of operations. When all is ready, the vessel will commence the unloading or loading process upon notification from the terminal.
12. During the cargo discharge operations (in the case of crude oil or other volatile cargoes) no other operation such as bunkering, taking on of ships' stores and supplies, etc., will be permitted without prior approval of the Harbor Department and Long Beach Fire Department in each specific instance. Bunkers, stores and supplies may be taken before or after, or at any time the vessel is not discharging cargo.
13. When the off-loading or on-loading of cargo is completed and the "Chiksan" arms are disconnected, the vessel may go into a "hoteling" status, or prepare to get underway.
14. When time to depart the wharf, the vessel's crew at the master's direction goes to their undocking stations and preparations are made for the ship to depart.

15. With vessel ready to get underway and the pilot aboard, the tugboats are "made up", and the gangplank is taken away. The mooring lines are cast off, and at the Pilot's direction the tugboats go into action to assist in easing the vessel slowly from the wharf out into the channel. The vessel is maneuvered in the turning basin, if necessary, and directed to a different berth, anchorage, or to sea.
16. If required by the vessel, and under pilot's advice, tugboats will assist the vessel safely to the Outer Harbor where they are released and the vessel proceeds out through the break-water entrance under its own power. After the pilot leaves the vessel in the general vicinity of the sea buoy, the vessel will then proceed to sea.

Security

The Port Operations Division of the Harbor Department maintains a Port Security Section which is authorized to supervise and manage various security operations for the Port of Long Beach. The Security Section is composed of twenty-five officers, including five supervisors and three dispatchers whose work is distributed over 24 hours with three eight hour watch shifts. One supervisor, one dispatcher, and three to four officers are typically on active duty during each shift. The Section maintains four to five dispatch and patrol vehicles.

The Port is split up into three areas for the purpose of security surveillance through roving patrols. One area encompasses Pier J and vicinity. The second area encompasses Piers A, B, C, F, G, and vicinity. The third area includes Piers D, E, 1, 2, and the backlying areas of the Inner Harbor extending up to Anaheim Street.

The general duties of Port Security officers include: supervision of 24-hour security operations from radio equipped patrol vehicles, maintaining constant monitoring of police, fire, pilot station and Coast Guard communications channels and direct telephone communication as required, providing physical security checks of all City owned properties in the District, enforcement of the Harbor Department Tariff Regulations, and reporting hazards and dangerous conditions to other responsible authorities. The Security Section investigates, reports, and records all vehicular and industrial accidents, provides public assistance, provides armed guard presence where required for traffic control and crime prevention, and provides direct liaison with other federal, state and local law enforcement agencies.

Risk Management

The need for continuing risk management in the Port and vicinity has been expressed by various sources including the Port authorities, the Coastal Act, Coastal Commission staff, various federal, state, regional, and city agencies and regulations, the City Charter, the Municipal Code, the General Plan and Elements, the Emergency Plan, and the general public. Risk management in the Port is defined as the effective management, control and direction of specified potential hazards with respect to existing and proposed development in the Port and vicinity with the aim of preventing and minimizing potential loss, injury or damage to persons, property, natural or economic resources.

Specified hazards have evolved out of major concerns expressed by various sources outlined above. These hazards or potential risks include but are not limited to the following: crude oil, gas, petroleum or toxicant spills; fill, diking and dredging hazards; geologic, subsidence, seismic, erosion and soil hazards; vessel hazards; structural instability; air and water pollution; transportation (mobile) hazards; water hazards; pilferage; rodents and insects; public disturbances; war and guerilla actions; equipment, operational and occupational hazards.

The Harbor Department is pursuing an extended program for the drafting and implementation of a comprehensive risk management plan for the Port of Long Beach through a grant application from the Coastal Energy Impact Program (CEIP) under the coordination of the California Coastal Commission and the Office of Planning and Research. The purpose of this program is to develop a policy and program instrument to facilitate the effective control and management of specified potential hazards in the Port and vicinity.

The Risk Management Plan as proposed will be developed in three phases: policy formulation and information, plan development, and legislation and implementation. This subdivision of tasks has been chosen to provide flexibility and independence of program pursuits suited to the availability of funding, staffing and time constraints and to facilitate the effective pursuit of a more comprehensive instrument of risk management in conjunction with the implementation of the Port Master Plan.

The appendices of this text include a draft of the policy formulation increment for phase one of the Risk Management Plan.

Intensified Use of Facilities

One of the directions the Port strives to follow in providing continued service for existing and future tenants is to maximize the utilization of coastal-dependent resources. In that effort, there are two very important concepts that help facilitate efficient, expanded Port operations. Wherever practicable, the Port management encourages "multi-company" and "multi-purpose" use of Port facilities. In general, however, these concepts may not be applied to every berth or terminal in the Harbor complex. Leasing arrangements, types of operations and commodities, physical constraints, and federal government interstate commerce regulations regarding anti-trust and anti-monopolistic operations all play a significant role in determining whether consolidation of facilities may occur.

The Coastal Act requires no change in the number or location of the established commercial port districts. Existing ports will be encouraged to modernize and construct necessary facilities within their boundaries in order to maximize or eliminate the necessity for future dredging and filling to create new ports in new areas of the state (Chapter 8, Article 1, Section 30701(b)).

The Port of Long Beach has been operating under the above criteria for the last decade. The last major dredge and/or fill operations occurred between 1965 and 1972. Since that time, the Port has endeavored to provide additional services and facilities by either rehabilitating under-utilized terminal complexes or consolidating similar operations. The Port's efforts at consolidation have contributed to a 25% increase in the volume of cargo handled since the early 1970's. For example, past efforts have fostered the development of the Berth 83 cargo terminal in the Inner Harbor. Currently leased by several operators this berth is used to transfer a variety of commodities such as lumber, gypsum and refined petroleum products. In addition, dry bulk operators on Piers A and G have successfully combined their operations and joint use of berthing areas. The most ambitious attempt by the Port to maximize operations is the proposed construction of the Pier J Basin facilities for crude oil imports. This complex when completed will provide multiple berths for cargo unloading operations, consolidating several new operators with older operators being relocated from antiquated Inner Harbor sites.

However, the extent to which the Port may consolidate in the future is somewhat limited. Many of the operations, particularly oil and container facilities, are approaching maximum utilization. Advanced cargo handling techniques could increase throughput, but generally the expected overall demand for new cargo terminals cannot be met through consolidation. New terminal facilities will be needed in the future, especially for containerized cargo, crude oil and a few dry bulk commodities like coal.

Trends in Shipping

The size in ships is ever increasing. It is anticipated that even with the increase in size, the Port will continue to have more and larger ships making this their West Coast origin or destination. The length of occupancy at berth by each ship can be expected to increase, in some cases, since the larger ships require longer time to transfer cargoes. Not all of the Port's backlands are equipped to handle the increased cargo tonnage from these larger vessels. As a consequence, the Long Beach Harbor Department is planning projects which will enable the Port to better handle the increased cargo. This is especially true for container operations and projects like the Pier J completion and the Pier C projects, which are being planned with larger ships in mind.

In addition to larger ships, the types of ships are changing. As new types of vessels start calling at Long Beach, the Port will try to accommodate them at existing terminals (e.g., LASH vessels and dry bulk carriers) or modify wharfs (e.g., Ro-Ro vessels) or build new terminals to accommodate them (e.g., deep-draft tankers).

In some cases, new ship designs will be handled at existing terminals. One such trend in the shipping industry is the Econship. The Econship - an austere, series production container ship design developed in the United States which has recently attracted new contracts -- has been followed by the Econfeeder, designed to bring similar economies to feeder operations. In early 1977, a contract was placed for the construction of four Econship bows and stems to be joined to existing Sea-Land container ship midbodies. These vessels, which are fitted to carry 35 foot and 40 foot containers, will trade in world-wide service and probably call at the Sea-Land Container Terminal on Pier G.

Ship design changes partially in response to cargo commodity requirements. In the dry bulk cargo sector, grain demand is increasing, and in response the Port's grainery terminal was recently expanded. The quantity of other dry cargoes have fluctuated depending on market demand. Liquid cargo, primarily petroleum products, has been increasing in demand and the Long Beach Harbor Department is planning several new marine terminals. General break bulk cargo demand has declined while the demand for container facilities has risen. When practicable, under-utilized break bulk terminals will be replaced with container facilities, as planned for Pier C. Some of the Port's break bulk demands have been quite stable, such as for fruit and lumber. Therefore, these operations are expected to continue in the Port.

Oil Production and Depletion

Long Beach's association with petroleum goes back to 1921 when the Long Beach oil field was discovered on Signal Hill. This event and the subsequent oil rush provided one of the great dramas of local history. The Long Beach oil field has produced 882 million barrels of oil and over 1 trillion cubic feet of gas, and is currently producing 7,172 barrels of oil a day under the unitized water flood program now in effect.

Following discovery of the Wilmington field in 1936, when tideland development was initiated, a petroleum department was established in Long Beach. Long Beach has been in the oil business ever since. Actual operation of the tidelands is carried out by three contractors.

Cumulative production of the Wilmington field, one of the largest in the United States, exceed 1.7 billion barrels, with an average daily production of 174,476 barrels. The tideland accounts for 113,925 barrels, or 65% of the daily field total.

The Los Angeles basin is one of the most prolific oil producing areas in the world, but it is also one of the most populous. In supervising the development of the Wilmington field tidelands, Long Beach has consistently been a leader in environmental protection. In fact, the offshore oil islands have been cited in the United States Congress as outstanding examples of how oil development can be compatible with the environment.

Long Beach tidelands operations have produced 846 million barrels of oil, and generated over \$1 billion in revenues, which have gone to construct projects throughout California.

The new Long Beach unit is estimated to contain over 1.3 billion barrels of recoverable oil reserves. This new unit of the Wilmington field is being developed from four drilling islands, beautified at a total cost of \$4 million to provide noiseless operation and to blend with the shoreline.

To prevent subsidence from occurring under the Long Beach Civic Center and in the easterly section of the City, the entire Long Beach unit area was developed using water injection as a pressure maintenance measure. Oil development surveys of surface elevations and reservoir conditions, and special compaction measurements, are routinely made to prevent any subsidence as a result of oil operations.

Declining production has been nominal because of waterflooding and other secondary recovery drives. The drop in revenues can be traced to depressed prices for local crude oil. To help maintain production, the city operates one of the largest water-flood programs in the United States. As another secondary recovery

device, a successful thermal stimulation program in the Long Beach unit produces an additional 325,000 barrels of oil daily.

Many of the producing oil wells within the Port have been located so as not to conflict with Port activities and cargo storage. Whenever practicable, new developments are designed to work around existing wells, since relocating a well is very expensive. Future planning for undeveloped areas within the Port will require consolidation of active wells in those areas with cargo operations. Uses which would require relocation of many wells are economically unsound. Therefore, use is restricted, as to the choices and efficiency, until the oil wells are gone. Coordination also must be continued with the oil producers to assure that areas with low productivity can be redeveloped first, and that new wells will not adversely effect areas planned for future projects.

Public Access

The capability, ability, and permissability for the general public to approach, enter, pass through and depart from locations within the Port jurisdiction by means of highway, pedestrian walkway, bicycle path, waterway, river or air is defined as "public access to the Port". Highway, pedestrian walkway, and bicycle path are the most common and readily available means of public access. Highway access to the Port may be achieved along the primary arterial spine of the Long Beach Freeway/Harbor Scenic Drive extension. Ocean Boulevard serves as a major east-west feeder road linking San Pedro and East Long Beach with the Long Beach Freeway and the Port. Queensway Bridge and Magnolia Avenue provide a more direct linkage between Downtown Long Beach and Port areas, especially Harbor Scenic Drive and the Queen Mary.

While automobile, bus and truck transportation are the main means of access to the Port, pedestrian and bicycle access also are available. Three basic routes commonly are used for pedestrian and bicycle access into the Port. One route comes off Anaheim Street south to Ninth, east to Pico Avenue, south to El Embarcadero, east to Windham Avenue, finally south into the Pier J area. A second route comes off Ocean Boulevard onto Harbor Scenic Drive and proceeds southward into the Port. A third route traverses the Queensway Bridge and enters the Port at Harbor Scenic Drive, Queensway Drive, and Harbor Plaza. At present all three routes are hazardous because pathways are either directly adjacent to or within highway rights-of-way with rapidly moving traffic and a minimum of separation. The Ocean Boulevard access route and the Anaheim route are especially hazardous because of a large amount of truck traffic. These routes are mostly through industrial areas of the Port where potential equipment and operational hazards are increased.

Pedestrian and bicycle hazards on Queensway Bridge and its linkages are also significant. The route is fed on the Downtown side by Magnolia Avenue, Ocean Boulevard and Shoreline Drive. On-ramps and off-ramps make this route hazardous for pedestrians and bicyclists, because it has no lights or stop signs to slow or stop on-coming traffic. Similar difficulties are encountered Portside, where a major interchange occurs at Harbor Scenic Drive and Harbor Plaza.

Pedestrian access and safety are facilitated to some extent in the Port by a set of stairways on either side of the Queensway Bridge. These stairs link the pedestrian path on the bridge with Queensway Drive, which is the secondary route linking the tourist and recreational area in the Port. A pedestrian promenade parallels Queensway Drive from the vicinity of the Quiet Cannon Restaurant to the Queen Mary and Mary's Gate Village. This path meanders along the shoreline of Queensway Bay linking various tourist and recreation sites and providing pleasant vistas of the City's shoreline, fishing, boating and waterskiing activities, and San Pedro Bay. One of the areas along this promenade is the proposed site of the Queensway Bay Marina. This will provide an added picturesque view to the public when completed.

While pedestrian paths are available across Queensway Bridge, bicycles have been prohibited from using this route by a City ordinance. In order to safely accommodate both bicycles and pedestrians, a major widening of Queensway Bridge would be required, as well as some significant safety improvements to roadways linking up to the Bridge. Also, the City ordinance would have to be repealed or revised. The cost of such improvements and changes could be significant. The benefits for pedestrian and bicycle access will have to be weighed against the cost and impacts of the improvements. One immediate problem which must be considered is the possibility that bicyclists, who currently use the Bridge illegally, may be injured or killed. Some short term control measures are necessary.

Public access to the Port by whatever means, while certainly desirable in protecting the public's right to coastal resources, must be tempered by prudent consideration of safety, security, sensitivity, property rights and liabilities. Public access to recreational, natural and tourist areas must be considered as a first order priority and measures shall be taken to provide safe and reasonable access to these amenities. A lower order of priority, although still important, must be access to Port-related or Primary Port uses such as industries, utilities and shipping facilities, at least visually. These uses pose additional hazards which require greater limitations and control on access.

The Coastal Act and the Government Code Article 3.5, Public Access to Public Resources, recognize the need for such controls near power plants, and industrial facilities, especially coastally dependent facilities. Military facilities and hazardous material storage and handling areas are off limits to the general public. Activities on ships, at docks and wharves are strictly regulated for purposes of safety by the Port Wharfinger, Port Security, and other pertinent City, State and federal authorities. Recreational activities such as fishing, diving, scuba diving, and boating are regulated within the Harbor District jurisdiction. Fishing from barges is prohibited without a permit and fishing in general is unlawful at any berth, wharf, or other area of the Harbor jurisdiction without securing permission of the General Manager in advance. Public fishing is allowed at the recreational area to the east of Harbor Scenic Drive to Pier J.

Certain areas are posted with signs which say "Keep Out - No Trespassing". Any trespassing thereon by unauthorized persons is unlawful. Boats are permitted to use only mooring facilities which are provided for that purpose by the Port. Various regulations of the Port's Tariff No. 3 apply to boats and slips, especially the navigational regulations (items No. 1285-1290). It is unlawful for any person to underwater dive, or to engage or participate in related underwater activity in the Port of Long Beach, except in designated recreational areas, unless a written permit is obtained from the General Manager authorizing such activity.

The primary concerns of Port operators in disallowing public access to certain sections of the Port are safety, property damage pilferage and Customs regulations. Generally, opening up the Port to greater public access will increase these problems.

Public and private insurers upon renewal of various types of insurance policies, be they fire, theft, damage, or liability tend to look at the risks, security measures, and recent experience in assessing the insurability and premium costs of certain facilities and operations. If public access is not adequately controlled in the Port, insurance rates will increase, and in some instances it may become difficult to obtain insurance at all. Therefore, an appropriate balance is essential.

Public access is one of the prime reasons why a comprehensive risk management program will be required to supplement the Port Master Plan. Port security and risk management are addressed elsewhere in this text.

Recreation

Recreational activities which are presently available in the Port include diving, sunbathing, walking, siteseeing, bicycling,

swimming, fishing, ecological studies, boating, water skiing, sailing, and tennis. Tourist attractions in the Port include: restaurants, such as the Quiet Cannon, Adolphs, the Reef, and various restaurants on the Queen Mary and in Mary's Gate; hotels such as the Queensway Hilton and the Queen Mary Hyatt Hotel; specialty shops, music and dance entertainment, and the Queen Mary museum. Short helicopter rides are available in the vicinity of the Queen Mary.

The recreational activities in the Port are primarily confined to a strand along the northeast sector generally between Harbor Scenic Drive and Queensway Bay. Some of this sector is still inaccessible and undeveloped, and the Port plans to augment existing tourist and recreation activities in this area to complement developments proposed by the City of Long Beach in the Downtown Shoreline area. Among additional projects proposed are development of new and expanded hotel facilities, development of a new marina in Queensway Bay, expansion and improvement of Queen Mary facilities, docking facilities for a boat shuttle from Downtown, an aerial tramway between Queen Mary and Downtown tourist facilities, a Harbor cruise ship facility, new boat launching facilities, and fishing platforms. As public activity increases between the Downtown area and the Port's recreational facilities, a rapid transit system may be needed to meet demand, reducing the amount of automobile traffic in and out of the area.

In recent years there has been a steady increase in fishing and viewing activities on the east side of Pier J. Although no formal facilities have been provided, these activities have continued. The recent conditional approval of the SOHIO project on Pier J included a "public access" requirement whereby SOHIO was directed to provide for the design and improvement of an oceanfront area along Pier J as a fishing park. This park is to be provided with parking facilities for cars, viewing platforms, restroom and fish cleaning facilities, fishing platforms, fast-food facility, landscaping, and trash cleaning and maintenance services. This project will constitute a major improvement in existing conditions on Pier J and should greatly facilitate both safety and access to the area.

Some concerns have been expressed by citizens regarding the lack of other recreational opportunities such as recreational vehicle (RV) parks in the City and in the Port.

In assessing the feasibility of sites within the Port for such facilities special considerations must be given to safety and security, the need for other coastally dependent uses, the availability of open undeveloped land, the healthfulness of the site, and visual impacts both of surrounding uses upon the facilities and of the facilities on surrounding sites. The Pier J site has been ruled out for a number of reasons. First, the site proposed for recreational development is of limited size

and would allow for only a small number of RVs. Second, RVs would require some overnight parking capabilities. Since the site is adjacent to the SOHIO facilities, although extensive safety measures have been taken, potential hazards exist and overnight parking would compound the safety and security problems at this site. Third, the site offers one of the most prominent views of the shoreline and the siting of an RV facility at this location, while beneficial to RV users, would constitute a visual impact, an underutilization and a restriction of public access at a point where access should be maximized.

Sites along the northeast shoreline of the Port are largely committed to marina, hotel, and other coastally dependent recreational uses through plans and lease agreements. A site between the Queen Mary and the Queensway Hilton has been designated as Queensway Bay Marina. While plans for this facility are not finalized, if such a facility is built it will require space for ancillary and service users, such as boat launching, dry dock, restrooms, and parking. Recreational boating uses have a high order of priority in the Coastal Act. The demand for boating being what it is, a marina would tend to be favored in this area.

West of Queensway Bridge is a site which has been leased to Feinberg Development Company for the purpose of constructing a hotel facility which is an extension of the existing Queensway Hilton complex. The completion of the Convention Center, the development of the Downtown Shoreline as a tourist and recreational attraction, and the anticipated expansion of recreational facilities in the Port are expected to create a demand for hotel rooms for the out-of-town public beyond the present supply. The availability of hotel facilities in close proximity to the coastline will make local recreational facilities more accessible. These facilities should be able to accommodate significantly more people on a continuing basis than could an RV facility at the same site. Also, hotel facilities would be more feasible from a fiscal standpoint than RV facilities.

Sites along the east and west shores of the Los Angeles River within the Port jurisdiction have been surveyed as possible recreational uses. On the east side of the river between Ocean Boulevard and Anaheim Street the shoreline is fragmented into many small, narrow and inaccessible parcels. These parcels are either surrounded by various on and off-ramps to the Long Beach Freeway or isolated along dead-end residential streets, too narrow for the larger RV vehicles. Just south of Anaheim some access is possible to the shoreline, but the area is heavily industrialized and visually impacted. Crime is also considered a problem in the area, and security and surveillance would be difficult to maintain, especially overnight.

On the west side of the Los Angeles River the shoreline is largely cut-off from access between Anaheim Street and Ocean

Boulevard by the Long Beach Freeway and Harbor Scenic Drive. These routes carry significant amounts of traffic to and from the City, the Port, Terminal Island and San Pedro at speeds approaching 55 miles per hour. The only access appears to be from the freeway itself. No special off-and on-ramp provisions have been made, although service road access exists for maintenance vehicles of the City and the Los Angeles Flood Control District. It is known that some recreational boaters utilize this access route to reach the shoreline of the river where an improvised launch ramp is used to launch their boat on weekends. Due to its isolation and the traffic hazards associated with access, this site is considered unsuitable for an RV park. Major improvements would be required to make this area safe.

Other sites in the Port which were considered include land in oil production, cargo storage areas and areas along the Cerritos Channel. Oil production land north of the Cerritos Channel is primarily on Union Pacific Railroad property. This area poses a number of problems. First, it is unsightly and pervaded by oil pumps, oil smells and pump noises. Second, it is traversed by the Southern California Edison right-of-way which, consists of major overhead powerlines and poles. Third, the areas terrain is relatively irregular due to subsidence which occurred before the current water injection techniques were applied. Fourth, the area is adjacent to a number of potentially hazardous industrial operations including the Texaco and Long Beach Terminal Company facilities. Fifth, the area is surrounded by heavily industrial uses. Sixth, major improvements and security operations would be required to maintain the site for a recreational use.

Major operational sections of the Port contain open cargo storage and oil handling areas, convertible to other uses in response to the availability of resources and commodity demands. Elsewhere in this text the issue of commodity demands is addressed in detail. Essentially, although these factors are considered variable and flexible, Port planning projected over a reasonable period of stability, five years or so, does not anticipate any reduction in the need for space to serve coastally dependent industries in the Port. On the contrary, increases in space demand are anticipated, which will require more efficient utilization of available land in conformance with Coastal Act policies.

The Coastal Act specifically discourages increased dredging and filling activities unless it is demonstrated that these are essential and that measures to utilize existing land more effectively are being applied. It would, therefore, appear to be detrimental to replace Port operational land uses with non-coastally dependent recreational uses and thereby increase future pressure for dredging and filling. Since dredging and filling could impose some significant potential environmental impacts, it is questionable whether such operations would be justified in the Port by the need for RV type uses in the City.

In conclusion, although there is an identified need for non-coastally dependent recreational uses such as RVs in Long Beach, an evaluation of the siting of such uses in the Port area demonstrates that there are unresolved safety issues, problems of access, questions of highest and best use, and significant potential environmental impacts associated with locating such uses in the Port.

ENGINEERING

Seismic Design Considerations

Seismic design criteria utilized within the Port of Long Beach specify not only the earthquake ground shaking and earthquake forces to be considered in the design of facilities, but also the allowable "stresses and strains" to be used in the design, so that seismic risk is kept to an acceptable low level.

Assessment of seismic risk as it relates to the design of structures requires a balancing of the expected future seismic disturbances against the consequences of damage sustained. For certain structures or facilities, possible consequences of damage may be so objectionable that the risk must be kept to a minimum. Other structures pose less physical hazards to occupants in the case of damage, will not adversely effect the environment, and will not be overly costly to repair. Over the long term, the cost involved in providing earthquake resistance should not exceed the anticipated cost of repair or replacement of damage inflicted by seismic events.

The Port criteria are based on design earthquake magnitudes which have relatively low probability of occurrence during the next 100 years. The basic levels of design earthquake ground motions recommended for the Long Beach Harbor area are:

1. A magnitude 6.5 to 7.0 earthquake, originating on the Newport Inglewood Fault on the northwesterly extension of the 1933 fault slip; and
2. A magnitude of 8.0 to 8.25 earthquake on the San Andreas Fault to northeast of Long Beach.

The Port seismic design criteria are intended to be applicable for all structures in the Harbor area. However, these criteria distinguish between the importance of various structures as regards to hazards to the public, deleterious effects on the environment, and the importance of the structure's function and cost of repair. To incorporate these factors into the design procedure, the Port of Long Beach has classified each proposed structure and facility according to the following:

Class A - Items for which the consequences of damage or collapse might be very severe in terms of hazard to life and limb, extensive damage to the environment, cost of repair, or interference with the operation of the Port.

Class B - Items that are important to the operation of the Port but whose damage would not pose an important hazard to life and limb or to the environment, and whose damage and repair would not seriously impede the operation of the Port.

Class C - Items not important to the operation of the Port and easily repaired such as temporary structures.

For Class A structures, the Port criteria specify that the basic level of design of earthquake motions as described previously be utilized as design seismic loading with allowable stress being yield point stress or equivalent. Localized exceedence of yield point strains by moderate amounts is acceptable.

For Class B structures, similar criteria are utilized, except the basic level of design earthquake ground motions is scaled by a factor of two-thirds. For each of these structure classes, there should be no failure in the event of ground shaking up to 1.5 times the design earthquake ground motions.

Class C structures are designed to meet the requirements of the Long Beach Building Code or their equivalent.

This type of approach is used to provide answers to such questions as defining foundation supporting capacity of existing ground, resistance to lateral and uplift forces, settlement of completed fill, long-term subsidence of areas such as Terminal Island, stability of perimeter slopes and dikes, foundation supporting capacity of completed fills and liquefaction of loose hydraulic fill.

Hydraulic Design Considerations

Prior to the construction of any facility at the land/water interface within the Harbor, the characteristics of the existing and anticipated hydraulic-related impacts are examined. This is done by a) determining the occurrence and severity of troublesome oscillations within the present Harbor complex; b) investigating tidal circulation characteristics of the present and proposed Harbor; c) determining optimum plans for future expansions to provide safe and economical berthing areas; and d) analyzing the effects of proposed expansions on the existing Harbor. These investigations are facilitated by the use of a Harbor model complex located at the U.S. Army Corps of Engineers Waterways Experiment Station in Vicksburg, Mississippi. Information from this model and other methods are used to produce hydraulic design criteria for perimeter dikes, mooring and piling systems.

GOVERNMENT JURISDICTIONS

Federal

U.S. Customs

Any shipment of goods through the Port of Long Beach from outside the United States must pass through U.S. Customs. Upon arrival at the Port, the importee must file an Entry of Goods form with the Port Director of Customs. The cargo must be kept under Custom's supervision until approved for entry. After an Entry for Goods has been filed, Customs will inspect the items to determine their value, if properly labeled, whether they are prohibited articles, and if they are correctly invoiced. After the cargo is inspected and fees are paid, the goods are free to enter the country.

U.S. Navy

The U.S. Navy maintains a shipyard and a Support Activity Center on Terminal Island. Because of their close proximity to the Port of Long Beach operations, the Navy often reviews Port project proposals. Their review primarily is limited to projects which include alterations to navigation, such as the proposed changes in the Outer Harbor anchorage designations.

Coast Guard

The U.S. Coast Guard has responsibility over federal waters in two general areas, navigation and pollution. Within its navigational jurisdiction, the Coast Guard is responsible for the "rules of the road" on all navigable waters within the United States. Navigational aides such as lights and buoys, rules for handling hazardous cargo, safety devices for ships and boats, lifesaving equipment, vessel registration and inspection, and sea rescue are all within the Coast Guard's jurisdiction.

In the area of pollution control, the Coast Guard has regulations on oil spills and marine sanitation devices. Most of the oil spill regulations relate to prevention, these include: oil transfer operations and vessel's design and operation modes, including ballast water requirements. In the event of an oil spill, the Coast Guard rules require that they be notified immediately and that the spill be cleaned up. The Coast Guard supervises the clean up, and in instances where the clean up has not started, they will initiate the clean up at the operators expense. The Coast Guard must also approve a terminal operator's oil spill contingency plan in addition to developing their own.

Coast Guard regulations on marine sanitation devices prohibit the manufacture, sale, or operation on any vessel of any toilet facilities which have not been certified by the Coast Guard. Regulations for such devices are intended to prevent the discharge of untreated sewage into national waterways.

The Coast Guard's influence over Port of Long Beach operations is significant. While not all shore facilities are subject to Coast Guard regulations, vessels are extensively regulated. The safe operation of a ship, while at sea or in port is a Coast Guard major responsibility. The Coast Guard inspects all tankers which call into the Port waters, with special care and attention to vessels carrying hazardous cargoes.

U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers has permit authority granted to it from several laws. The River and Harbor Act of 1899 granted the Corps administrative and enforcement authority over the following:

- Dams or dikes across any navigable water;
- Structures, excavations, depositions, or any work which obstructs or alters any navigable water;
- Establishment of pierhead lines within harbors;
- Private improvements to any navigable river.

The 1972 Federal Water Pollution Control Act requires that the discharge of dredged or fill material must have a permit from the Corps, subject to the guidelines established by the EPA. The Marine Protection, Research and Sanctuaries Act of 1972 also gives the Corps permit authority over the transportation of dredged material for dumping, again subject to EPA guidelines. Both of the latter two Acts also allow the EPA to deny a Corps dredge permit if the action would have an unacceptable environmental impact.

The Corps, in making a determination to issue a permit, must consider several factors, including the project's effect upon the following: wetlands; fish and wildlife; water quality; historic, scenic and recreational values; territorial sea; adjacent properties; coastal zone activities; marine sanctuaries; and floodplains. The Corps must also consult federal agencies such as the Departments of Interior and Agriculture, the Fish and Wildlife Service, the National Marine Fisheries Service, National Oceanic and Atmospheric Administration (NOAA), Environmental Protection Agency (EPA), state agencies responsible for fish and wildlife, and the general public.

Because of the Corps' extensive authority over harbor activities, the Long Beach Harbor Department has consulted with the Corps in the preparation of this Master Plan. The Corps itself, is in the process of preparing a planning study for the San Pedro Bay under authorization of several Congressional and Senate resolutions. This study is to identify how the National, State and local needs can be met by modifying the Ports of Long Beach and Los Angeles. Communication between the Corps and the Long Beach Harbor Department has been and will continue to be of necessity to insure compatibility between this Master Plan and the Corps' planning study.

Most proposed Port projects require Corps permits. Therefore, future planning will be done in consultation with the Corps. The Corps' past planning role has helped to build the Port over the last fifty years.

State

Tideland Grants to the City of Long Beach

The State of California provided the initial basis for the development of the Port by a 1911 act granting to the City of Long Beach the tidelands and submerged lands of the state within the boundaries of the City of Long Beach. This area was granted in trust for certain specified uses and purposes "...necessary or convenient for the promotion and accommodation of commerce and navigation...." Subsequent additions to the tideland grant entrusted the City of Long Beach also to provide for fishery, recreation and education. These statutes, passed by the California State Legislature, have been used as guidelines by the Port of Long Beach Board of Harbor Commissioners and staff in developing the Harbor.

State Lands Commission

Chapter 138, Tidelands legislation, provides for handling of Long Beach tidelands oil and gas revenues. The State Lands Commission was designated to administer the State's interest in this matter. The Long Beach Harbor Department must obtain State Lands Commission approval for the use of revenue funds for subsidence abatement activities. The State Lands Commission also is a reviewing agency for most projects in the Port of Long Beach under the California Environmental Quality Act. They are therefore consulted during the preparation of environmental or planning documents.

Regional and Local

Los Angeles County Flood Control District

The Los Angeles River passes through the Long Beach Harbor Department's jurisdictional area along the northeastern boundary. The river's boundary is limited by a 720 foot wide strip which extends beyond the rock levee, up to 70 feet in some places. The authority to maintain the river has been delegated by the Army Corps of Engineers to the Los Angeles County Flood Control District (LACFCD). The LACFCD administers the river, and permit authority for activities within the river's legal boundary rests with the LACFCD. Therefore, any projects, such as a bridge or pipeline, by the Long Beach Harbor District are subject to LACFCD review and approval. The Harbor Department must also allow the LACFCD access to the channel.

Southern California Association of Governments

The Southern California Association of Governments (SCAG) is a regional agency which was formed in 1965 by elected officials from Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura counties to deal with problems affecting the residents of the general region. SCAG acts as a communication link and a clearinghouse for local officials by providing a forum for the exchange of information, and the investigation and discussion of areawide problems. SCAG fosters local government cooperation, helps in regional planning strategy development, provides technical assistance to individual agencies and communities, and helps obtain state and federal funds.

Among the issues of concern of SCAG are mobility, energy consumption, air pollution, financing, and the determination of project priorities. SCAG also administers the planning and implementation portion of EPA's Section 208 program, which seeks to improve local and regional water quality management. This program has particular significance in the management of Port operations and resources.

Pollutants which flows down the Los Angeles River into Queensway Bay represent the kind of problem for which SCAG administration can be helpful. Pollution is generated up river within various municipal, county, and regional jurisdictions. This problem cannot be solved unilaterally but requires the combined efforts of the pertinent jurisdictional agencies. The forum for this type of cooperation can be provided through SCAG and the 208 program.

Port of Los Angeles

San Pedro Bay, located south of the Los Angeles-Long Beach Metropolitan area, encompasses the largest harbor complex of any area

along the entire West Coast of North America. While considered by many people to be one harbor, actually there are two ports, the Port of Los Angeles located in the westerly portion of San Pedro Bay and the Port of Long Beach directly adjacent and to the east. Operationally and politically the ports have developed separately. However, there are many factors that provide continuity between the two ports.

Politically, around the turn of the century, the ports were developed under the auspices of the cities of Long Beach and Los Angeles with tideland grants from the State of California. Each port is under the direct control of a Harbor Department and a Board of Harbor Commissioners. From an operations standpoint, the control and maintenance of the harbors occur separately. However, many routine port functions intricately weave the two ports together. The ports share a common labor pool, rail and truck services, salvage and dry dock facilities, tugboat services, and marine construction companies, as well as, numerous ancillary port activities. Because the market area is generally the same, competition develops in an effort to provide the best service to tenants. Historically, this "healthy" competition has resulted in improvements and refinements in the physical as well as operational development of the both harbors. As a result, needless duplication of facilities has not occurred.

The natural environment, including the atmospheric, marine and terrestrial environment of the two ports, must be viewed as a continuous "eco-system". Careful attention and coordination between Los Angeles and Long Beach harbors must be maintained in order to enhance the overall environmental quality. As projects or shifts in operations occur both planning staffs must determine the impacts on San Pedro Bay.

Numerous joint studies and projects have been undertaken by the two ports. These include:

- (a) Economic Impact of Waterborne Commerce by Williams-Kuebelbeck and Associates, Inc.
- (b) Study on intermodal transfer facilities.
- (c) Corps of Engineers sponsored long range San Pedro Bay study involving economics, transportation, navigation, hydraulics, geotechnical investigations, and environmental analyses.
- (d) Redesignation of anchorage assignments.

On a regional basis, there are essentially two agencies that have an active role in evaluating port planning activities for the San Pedro Bay ports, the U.S. Army Corps of Engineers and the Southern California Association of Governments (SCAG).

City Charter Mandates

The Long Beach City Charter, Article XII, in 1931 established the City of Long Beach Harbor Department, and empowered the Board of Harbor Commissioners with "the exclusive control and management of the Harbor District" (see Figure 6). The Harbor Department's jurisdiction coincides with the westerly portion of the area originally entrusted to the City through the Tideland Grant. The Charter further directed the Board to make provisions for the needs of commerce, shipping and navigation; to promote, develop, construct, repair, maintain and operate Port properties and facilities; and to establish, equip and operate all other facilities or aids incident to the development of the Port.

Redevelopment Agency

Redevelopment activities of the City of Long Beach are the primary responsibility of the Redevelopment Agency which is associated with the City's Department of Community Development.

Among the redevelopment areas which are within the jurisdiction of the Redevelopment Agency is the West Long Beach Industrial Redevelopment Project. This has been an active project of the Agency since December of 1973. The project area, as it is presently defined, encompasses approximately one third of the Harbor District bounded on the south by Ocean Boulevard, on the west by the City boundary, on the east by the Los Angeles River, and on the north by Anaheim Street. The project area also includes a segment outside the existing boundaries of the Harbor District between Anaheim Street and Pacific Coast Highway.

The Redevelopment Plan for the area was adopted by the City Council on July 1, 1975. This action empowered the Agency with authority for implementation of the Plan; with authority to impose land use controls, design and development standards, and limitations for a period of 50 years; with the power of eminent domain in the area; and other such powers as provided by law.

The foregoing powers and responsibilities include the right to impose a tax increment financing approach in the project area, effectively "freezing" all tax monies above and beyond the current level during the span of the program.

The monies thus frozen can be applied within the area to finance a variety of activities such as public improvements, relocation of residents and businesses, promotion of the growth, and expansion of the industry in the area.

The Redevelopment Plan includes a map and a general description of uses permitted in the Redevelopment Area. Permitted industrial uses are categorized as light and general industrial, including

utility and port uses. Compatible and ancillary commercial and service uses are also permitted. The Plan proposes the development of strict performance standards to control noise, odor, dust, glare, vibration, eletromagnetic disturbances, and exhaust emissions from industrial and manufacturing operations. Strict floor area and height standards and ratios, parking standards, and other standards are mandated.

The Redevelopment Plan also addresses other uses such as public rights-of-way and easements, public, semi-public, institutional and non-profit uses, and temporary uses. It establishes general controls and limitations upon new construction; existing non-conforming uses; rehabilitation; limitations on the type, size, height and number of buildings; open spaces and landscaping; light, air and privacy; signs; utilities; incompatible uses; non-discrimination and non-segregation; minor variations; and resubdivision. The Agency already has developed a set of project design standards for the area which address each of the above areas of land use, circulation, parking, structure, and sight design in greater detail.

The Harbor Department and the Redevelopment Agency have in the past cooperated and consulted with each other in the areas of overlapping jurisdiction. When the Port Master Plan is certified, the Harbor Department through the Board of Harbor Commissioners is authorized to review and act upon all development permits within its jurisdiction within the scope of the Coastal Act mandates. It is anticipated that this cooperation and consultation will continue with respect to the formulation and review of design and development standards, procedures and controls; with respect to the evaluation of specific proposals for development and improvement, public and private; and with respect to the resolution of conflicts and the determination of consistency between the Redevelopment Plan and the Port Master Plan.

City of Long Beach General Plan and Elements

The preparation, adoption and administration of the General Plan and Elements of the City of Long Beach is mandated by California Government Code, Article 5 (commencing with Section 65300) of Chapter 3 of Title 7, as amended. The City Planning Department has the primary responsibility for document preparation. The Planning Commission reviews the documents, approves them by resolution, and transmits them to the City Council, which reviews, endorses, and adopts the documents by resolution.

General Plan

The General Plan consists of a statement of development policies, diagrams, and text setting forth objectives, principles, standards, and plan proposals. Elements required to be included

in the General Plan which have been prepared by the City include: Land Use, Circulation, Housing, Conservation, Open Space, Seismic Safety, Noise, Scenic Routes, and Public Safety. Other elements which have been or are being considered by the City as part of its General Plan include: Population, Coastline, Urban Design, Environmental Management, and Recreation.

Land Use Element

The Harbor Department, fulfilling its planning responsibilities in the Port, has provided advice and cooperation in the course of preparing, adopting and administering the General Plan and related Elements. The Land Use Element which was recently revised incorporates most of the Harbor related uses within the "Harbor, Airport and Freeways" land use district. The area north of Ninth Street in the Harbor District is designated under the general "Industrial" land use district category due to the more general nature of uses. The northeastern boundary of the Harbor District is planned as a combination of "Mixed Tourist Recreational" and "Open Space and Park" land use districts. The latter district designations augment the Queen Mary, and other existing tourist and recreational uses and unify them visually with similar uses across Queensway Bay to the north. The Port Master Plan will ultimately be integrated into the City's General Plan.

Circulation Element

The recommendation of the Harbor Department on circulation within the Port have been incorporated in the Circulation Element. In recent years the need for street improvements in the Port has required major revisions in Port street plans. Since engineering and planning in the Port must be responsive to relatively shorter term changes than are typically involved between revisions of a General Plan element, the Circulation Element does not currently reflect recent revisions. These changes will have to be incorporated when the Circulation Element is next revised.

Seismic Safety Element

The Seismic Safety Element is intended to provide a comprehensive analysis of seismic factors in order to reduce loss of life, injuries, damage to property, and social and economic impacts resulting from future earthquakes. A citywide study based on a report by the consulting firm of Woodward-McNeill and Associates on potential seismic hazards is presented which incorporates a qualitative evaluation of the potential for eleven seismic related hazards in various response areas of the City. The following general findings are representative of much of the Port area:

1. Predominantly natural or hydraulic fill area, generally granular.
2. The groundwater level is generally less than 20 feet.
3. The area is predominantly flat lying.
4. Fault rupture potential considered minimal.
5. Groundshaking would be most severe for high-rise structures over ten stories.
6. Liquefaction potential is greatest relative to other study areas.
7. Slope stability problems are considered minor.
8. Flooding potential is considered minimal.
9. Potential tsunamis and seiches hazards exists.

The Seismic Element presents a set of recommendations for short, intermediate and long range implementation of principles for achieving a safer environment in the categories of land use, structural safety and design, public information, codes, insurance, personnel, and enforcement.

Conservation Element

The Conservation Element recommends the establishment of a management program for commercial and recreational developments in the Harbor in the near future which could improve the quality of marine eco-systems. Specific emphasis is placed upon the careful development of landfills, and the prevention of water quality degradation and destruction of habitats in the Harbor. The Element also presents recommended principles directed toward recognizing, protecting and enhancing the natural resources and special areas of interest in Long Beach with respect to water, marine biota, mineral resources, wildlife and vegetation, and habitats. The issue of subsidence is addressed with respect to oil production in Long Beach Harbor.

Open Space Element

The Open Space Element addresses the preservation and enhancement of existing open space resources within the City including park and recreation areas, water bodies, vacant land, areas with significant natural resources, rights-of-way, highways, flood control channels, and open areas required for public safety. Areas of particular concern include Long Beach Harbor, beaches, Alamitos Bay, regional and local parks and trails,

private open space, and school grounds. The Plan proposes conservation and enhancement in the Harbor by:

1. Coordinating future development plans with the oil operators to achieve a successful and economically rational program of phasing;
2. Recommending design controls which will serve to encourage development while maintaining the basic open character of the area;
3. Monitoring proposed developments through use of the environmental review procedures;
4. Encouraging the preparation of an overall master plan of the area which includes internal user open spaces and linkages.

The "Westside Linkage" identified in the Plan also includes a portion of the Harbor District along the Los Angeles River Channel, the Long Beach Freeway, and the Edison Company right-of-way. Preservation and enhancement are recommended in this area by:

1. Working with other agencies to bring the plan to fruition;
2. Developing methods for overcoming design and safety problems;
3. Establishing a desired path through the developed portions of the City.

Noise Element

The Noise Element presents a comprehensive program for noise control and abatement in Long Beach, including an analysis of noise generators such as transportation, industry, construction, and population. The Element establishes goals and policies for noise control, inventories sources and levels, identifies potential problems, and presents recommendations for control and abatement of noise. After the adoption of this Element the City prepared and adopted the Noise Control Ordinance. This Ordinance included a Noise District map which designated the permissible noise level readings in five districts of the City. The noise district which encompasses the Port of Long Beach is District 4, which allows noise levels not exceeding 70 dBA, with the exception of a narrow strip of land along Queensway Bay which includes the Quiet Cannon Restaurant, the Queensway Hilton and the Queen Mary. The latter strip is designated as District 3 which permits noise levels not to exceed 65 dBA as specified by the ordinance.

Scenic Routes Element

The Scenic Routes Element serves as a comprehensive plan for the development and protection of the system of scenic routes and corridors in the City. It identifies and inventories elements of historical, cultural, recreational, industrial and aesthetic importance, establishes a set of goals and policies, maps routes which may have merit for inclusion in a designated system, and establishes criteria and design standards to protect the scenic corridors.

On Pier J in the Harbor area, the Queen Mary, Marys Gate Village and Costeau's Museum of the Living Sea are cited as cultural assets, combining educational and recreational activities, for which a scenic route system is conceived. Queensway Bridge is described as the "gateway to the Pier J complex and its foremost landmark - Queen Mary." A number of planned attractions described on Pier J in the Scenic Routes Element are now defunct, including the proposed 20th Century Fox Pleasure Island and the Pier J Marina Complex, both of which were found to be infeasible after some preliminary studies. However, the proposed Queensway Bay Marina, which was planned subsequent to the preparation of this Element, would provide an additional attraction, as would the proposed Pier J recreational area to be provided by SOHIO as part of their conditions of permit approval.

An "Industrial-Educational Scenic Route" is proposed through the Westside Industrial Area and the Port of Long Beach including Queensway Bridge, Harbor Scenic Drive, Harbor Plaza, Panorama Drive, Ocean Boulevard, the Desmond Bridge, the Navy Mole, the Terminal Island Freeway, and Pacific Coast Highway. A "Scenic Bicycle Route" has been proposed across Queensway Bridge, and along Harbor Scenic Drive, linking the Downtown Shoreline with the Queen Mary and Pier J. See the separate discussion on Public Access and Recreation in this text.

Public Safety Element

The Public Safety Element establishes a set of principles for public safety in Long Beach; discusses existing conditions in the City with respect to fire protection, geologic hazards, crime prevention, utility hazards, and industrial and transportation hazards; presents a qualitative evaluation of acceptable and unacceptable risks; and proposes a set of short term and long term recommendations for the improvement of risk management and public safety in the City of Long Beach.

The Harbor District with its numerous underground petroleum pipelines, oil terminals, and tank farms is described as presenting potential fire and explosion hazard, and indirect potential hazards due to a major earthquake. Fire safety features installed on the Queen Mary are cited as minimizing potential

fire hazards. Studies for the Seismic Safety Element are cited with regard to geological hazards. Power interruption due to failure of a component in the Southern California Edison Power Plant and distribution network is cited as a potential safety threat. The transport of hazardous materials such as fluids, chemicals, or explosives is discussed with regard to public and worker safety, especially within the Harbor District.

RELATED ENVIRONMENTAL LEGISLATION

Air Quality Regulations

A key goal of the Clean Air Act of 1970 is to "...protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare..." To achieve this goal, the Act authorized the Environmental Protection Agency (EPA) to establish air quality standards for the Nation, to initiate research in this area, and to provide assistance to state and local governments in the development and operation of their air pollution control programs; this includes financial assistance.

Permits to construct new facilities which would result in air emissions would be issued through the EPA until a state has an approved implementation plan of its own. New emission sources must meet EPA standards. In areas where standards are not being met (non-attainment areas), the new source will be required to eliminate emissions in excess of those associated with the new source.

The California Health and Safety Code has designated the Air Resources Board (ARB) as the control agency for purposes of the Clean Air Act. The duties of the ARB also include regulation of emissions from motor vehicles and establishment of standards of air quality for each air basin. Permit authority to operate non-mobile sources rests with the local Control Districts, and with the ARB acting as a review board in case of appeals. The local Districts must also adopt rules and regulations to achieve State and federal ambient air quality standards.

The Southern California Air Quality Management District (SCAQMD), established by the Lewis Air Quality Management Act, includes the counties of Los Angeles, Orange, San Bernardino, and Riverside. The SCAQMD has the responsibility to adopt an ambient air quality plan and issue permits in accordance with their rules and regulations for stationary air pollution sources.

The Port Master Plan indicates that several proposed projects may be new emission sources. Activities within the Port of Long Beach which have associated air emissions must obtain permits from the SCAQMD. Air emission levels must comply with EPA and State standards and the new offset policy, since this area is classified as a non-attainment area. Because EPA has not yet approved California's implementation plan, an EPA permit is also required for all new sources.

Federal Water Pollution Control Act

The 1972 Federal Water Pollution Control Act (FWPCA) was enacted to "...restore and maintain the chemical, physical and biological integrity of the Nation's waters". The authority to administer this Act rests with the Administrator of the Environmental Protection Agency or states with water laws of their own which satisfy the regulations of this Act. California is a state which has been given the authority to administer this Act (see the discussion on the Porter-Cologne Act following this section).

Under the FWPCA, all discharges of pollutants into the nation's waters shall be eliminated by 1985. Several policies have been developed to achieve this goal, including federally funded research programs and the development of effluent guidelines. A procedure for the issuance of permits was established which enables the EPA or a state to allow discharges, subject to the provisions of this Act.

In addition to point source discharges, this Act also regulates other pollution sources. However, dredging activities are the responsibility of the Corps of Engineers as discussed earlier. Discharges of oil and hazardous substances are prohibited; enforcement of this rests with the Coast Guard. The Coast Guard also has the responsibility to assist the EPA in establishing regulations pertaining to marine sanitation devices and enforcement of these regulations.

Projects within the Port of Long Beach would be subject to the FWPCA whenever they discharge wastes into the ocean. Dredging permits would be processed through the Corps of Engineers as previously discussed. Point source discharges, whether for construction or operation, would be permitted through California's Water Resources Control Board using standards established by this Act.

In the implementation of this Master Plan, the Long Beach Harbor Department will not encourage projects which include operational discharges. At present, the only facility with a discharge is the Southern California Edison generating plant on Terminal Island which has a once-through cooling water discharge. Any new facility which proposes a discharge would be subject to this Act.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (PCA) was enacted in California prior to the 1972 Federal Water Pollution Control Act. The intent of the California Act (both before the FWPCA and after being amended to comply with the FWPCA) was to

protect the waters in the State for the use and enjoyment of its citizens. The authority to administer this Act rests with the State Water Resources Control Board and nine regional boards.

All dischargers into California waters must obtain from its regional board a permit which is in accordance with the FWPCA's National Pollutant Discharge Elimination System (NPDES). This includes construction as well as operational discharges. Examples of construction discharges include hydrostatic test water and excavation dewatering. In addition to NPDES requirements, all discharges must meet the goals and objectives of the State Water Resources Control Board as authorized in the PCA.

The PCA also requires the regulation of dredge disposal. This is in addition to the Army Corps of Engineers authority. The Long Beach Harbor Department will be required to meet the requirements of the Southern California Regional Water Quality Control Board (SCRWQCB) when it undertakes future dredge and fill projects as described in this Master Plan.

National Environmental Policy Act

The National Environmental Policy Act (NEPA) sets forth policy intended to protect and enhance the Nation's environment. The Act required that all federal agencies consider the environmental impacts of their activities, and if potential significant impacts exist, an Environmental Impact Statement (EIS) must be prepared. The Council on Environmental Quality was established by the Act to monitor federal activities and draft guidelines.

Federal projects which can be shown not to adversely impact the environment do not require the preparation of an EIS, while those, which may have a significant adverse impact will generally require an EIS. The contents of an EIS must state what impacts the project will have upon the environment and discuss the degree of impact, possible mitigations, and alternatives to the proposed action.

Since NEPA applies only to federal projects, activities within the Port of Long Beach would not normally require an EIS. However, if a federal agency, such as the Corps, were to carry out an action, that action would then be subject to NEPA. In such an instance, the Long Beach Harbor Department would consult with the federal agency involved and assist, as appropriate, in the preparation of the EIS as required.

California Environmental Quality Act

The California Environmental Quality Act (CEQA) was adopted after the National Environment Policy Act. Like NEPA, CEQA is intended to establish policy for environmental protection and to balance developmental goals, public health and welfare, and environmental quality.

In many other respects, CEQA is similar to NEPA. Projects which are not exempt by CEQA, must have an Environmental Impact Report (EIR) prepared on them or a Negative Declaration describing why the action would not have a significant impact. The EIR contents are similar to those of an EIS, with the EIR containing additional section requirements. Both Acts are designed to assist in the early planning stages of proposed projects.

A major difference between CEQA and NEPA is that the CEQA is not limited to governmental initiated projects. In the Friends of Mammoth case of 1972, the California courts ruled that private projects also must comply with CEQA.

Within the Port of Long Beach, all projects are subject to review under CEQA. The Long Beach Harbor Department acts as lead agency for activities within the Port and must determine if an action is exempt under the CEQA. If it is not, then the Long Beach Harbor Department prepares an assessment to determine if an EIR is necessary, and in turn prepares the EIR.

In anticipation of the CEQA review, many larger projects are proposed with mitigation measures included. Other governmental agencies are reviewing these projects earlier in the development. The general public is also more aware of Port activities and is becoming more active in the review process.

COASTAL ACT ISSUES

Legal Basis for Port Master Plan

On January 1, 1977, California enacted a comprehensive, coastal management program of which the California Coastal Act is the foundation. The Coastal Act defines the State's coastal management goals and policies, establishes the boundaries of the State's coastal zone, and creates the governmental mechanisms for carrying out the management program. The Act specifies basic policies for coastal conservation and development aimed at protecting, enhancing, and restoring coastal environmental quality and resources, giving priority to coastal-dependent development, and maximizing public access to the coast.

The entire coast of California with the exception of the San Francisco Bay area, which is under the auspices of the San Francisco Bay Conservation and Development Commission (BCDC), is affected by the Coastal Act of 1976. However, due to the unique nature and operation of port complexes, the ports of Hueneme, Los Angeles, Long Beach and San Diego are given special consideration in the Coastal Act.

Chapter 8 of the Act governs those portions of the four ports located within the coastal zone excluding any wetland, estuary, or existing recreation area identified in Part IV of the California Coastal Plan. In order to implement Chapter 8, containing findings and policies aimed at maximizing the use of coastal port resources and minimizing environmental impact, provisions were made for the development of a port master plan (PMP). Chapter 8, Section 30711 identifies the requirements of a port master plan and is described below.

30711. (a) A port master plan that carries out the provisions of this chapter shall be prepared and adopted by each port governing body, and for informational purposes, each city, country, or city and county which has a port within its jurisdiction shall incorporate the certified port master plan in its local coastal program. A port master plan shall include all of the following:

1. The proposed uses of land and water areas, where known.
2. The projected design and location of port land areas, water areas, berthing and navigation ways and systems intended to service commercial traffic within the area of jurisdiction of the port governing body.
3. An estimate of the effect of development of habitat areas and the marine environment, a review of existing water quality, habitat areas, and quantitative and quali-

tative biological inventories, and proposals to minimize and mitigate any substantial adverse impact.

4. Proposed projects listed as appealable in Section 30715 in sufficient detail to be able to determine their consistency with the policies of Chapter 3 (commencing with Section 30200) of this division.
5. Provisions for adequate public hearings and public participation in port planning and development decisions.

(b) A port master plan shall contain information in sufficient detail to allow the commission to determine its adequacy and conformity with the applicable policies of this division.

The intent of this document is to fulfill the requirements of Chapter 8 and provide for master planned development consistent with the Port of Long Beach and Coastal Act policies.

After the Port Master Plan or any portion thereof has been certified, the permit authority, presently exercised by the Coastal Commission under Chapter 7 of the Coastal Act, will be delegated to the Board of Harbor Commissioners, except that approvals of any of the following categories of development by the Board may be appealed to the Coastal Commission:

- (a) Developments for the storage, transmission, and processing of liquefied natural gas and crude oil in such quantities as would have a significant impact upon the oil and gas supply of the state or nation or both the state and the nation. A development which has a significant impact shall be defined in the master plans.
- (b) Waste water treatment facilities, except for such facilities which process waste water discharged incidental to normal port activities or by vessels.
- (c) Roads or highways which are not principally for internal circulation within the port boundaries.
- (d) Office and residential buildings not principally devoted to administration of activities within the port; hotels, motels and shopping facilities not principally devoted to the sale of commercial goods utilized for water-oriented purposes; commercial fishing facilities; and recreational small craft marina related facilities.
- (e) Oil refineries.
- (f) Petrochemical productions plants.

The above listed projects may be appealed to the State Commission and are subject to all the provisions of Chapter 3 of the Coastal Act.

Relationship of Master Plan to Local Coastal Program

According to the California Coastal Act of 1976, "...each local government lying, in whole or in part, within the coastal zone shall prepare a local coastal program (LCP) for that portion of the coastal zone within its jurisdiction. Local coastal programs or portions thereof, prepared by the Commission shall be completed not later than July 1, 1980, and certified not later than December 1, 1980..." (Chapter 6, Sections 30500 and 30501). The City of Long Beach is engaged in developing a Local Coastal Program in accord with this mandate. Although the Port of Long Beach is geographically and jurisdictionally within the boundaries of the City of Long Beach and within the "coastal zone", the Coastal Act requires a separate Master Plan for the Port. However, in order to provide continuity and coordination between City coastal planning and Port planning, the Port Master Plan will be incorporated for informational purposes in the City of Long Beach LCP (Chapter 8, Section 30711).

The Port staff, since June of 1977 has been engaged with the Long Beach Planning Department and the Local Coastal Program Advisory Committee in defining planning areas and identifying issues of concern. Since June, weekly meetings have been held in an effort to develop the LCP. The commercial/ recreational activities in the Port along the east side of the Harbor District, adjacent to the LCP planning area, has been considered by the Advisory Committee.

THE PLAN

BACKGROUND

The Port Master Plan which is presented in this text is the result of continuing Harbor Department involvement in the process of port planning and development, and persistent efforts to update and adopt previous Port plans in response to new and changing demands and requirements. Certain benchmarks may be cited from the recent past which have guided planning efforts in the Port.

Since the early 1970's the City of Long Beach has been engaged in revising, preparing and adopting the Long Beach General Plan and Elements in conformance with Title 7 of the California Government Code. The Port, based on its distinct jurisdictional authority as defined in the City Charter, prepared a Port General Plan (PGP) intended to serve as a comprehensive policy and informational guide for Port planning and to augment the General Plan of the City. PGP preparation was a fairly long term endeavor started in 1972. During the course of PGP preparation changes in economical, political and environmental conditions significantly altered planning state-of-the-art on local, state and national levels.

The Board of Harbor Commissioners determined that an Environmental Impact Report (EIR) was required on the PGP in compliance with the California Environmental Quality Act (CEQA) of 1970, as amended. An outside consulting consortium was contracted to prepare the EIR and a Master Environmental Setting to be used as references for future Port planning. The latter documents were completed by early 1977. The EIR recommended changes in the PGP to mitigate certain environmental impacts. Furthermore, a review of the PGP found that it needed to be updated to reflect changing conditions and to conform with recent changes in policies and proposals of the City's General Plan and Elements.

Before the PGP could be revised to conform to the latter recommendations and findings, the California Coastal Act of 1976 became law and the emphasis on Port planning shifted toward preparation of a Port Master Plan (PMP) in conformance with the requirements of that Act. Since the requirements for the PMP differed from those of the PGP, the Board of Harbor Commissioners directed the Port staff to undertake an extended analysis to consolidate the recommendations of the PGP EIR, the provisions of the City's revised General Plan and Elements, and the requirements of the Coastal Act in the PMP.

TIMEFRAME

The timeframe in which the Port Master Plan is to be implemented depends upon the certainty with which future functions and uses in the Port can be predicted. It is common in city planning to project land use patterns over a twenty or even thirty year timeframe. The City of Long Beach General Plan includes elements which project development and population trends to 1990 and beyond. Naturally, the further one projects into the future the more tenuous and uncertain is the prediction.

In the highly dynamic context of Port activities, where changes in international, national, and local economics, market demands, technological innovation, and governmental requirements can and do effect significant shifts in functional and land use patterns on a short term basis, such long range planning as is typically practiced by cities is both impractical and inappropriate for the majority of uses. A shorter timeframe such as five years is more responsive to political changes, major economic fluctuations and evolving technology which have in the past been prime movers in shaping land use policy in the Port.

Areas of the Port which are presently involved in the production of oil and gas are expected to continue in this mode for another 15 to 30 years, depending upon the demand for these products. Land uses which may be developed after present uses in these areas are phased out are subject to the same long range uncertainties as other primary and Port-related activities. The demands for given types of functions and changing technology will have major influences on how much land must be devoted to given uses. Because of the essential role which the Port plays in the economy of California, the options on long range land use must be flexible and adaptable. Therefore, proposed uses in the oil and gas production areas must remain relatively tentative and responsive to short term demands.

Considering the above, the Port Master Plan has been projected for a five year timeframe. Therefore, the PMP will be reviewed on a continuing five year basis to determine its adequacy and to incorporate any revisions which may be necessitated by changing conditions.

GOALS AND OBJECTIVES

The goals and objectives of the Port Master Plan evolve from the issues and needs addressed by various sources which contribute to the shaping of Port policy. These sources have been addressed in the Introduction. They include the Coastal Act, the City Charter, the Municipal Code, the General Plan and Elements of the City, federal, state and local jurisdictions and legislation, and public concerns expressed during the preparation of this document. The goals and objectives are conceived of as flexible and adaptive, not immutable ends. They are open to change as needs, experience and knowledge dictate. They represent a set of general non-exhaustive guides for Port planning policy upon which the Port Master Plan is founded. The following list identifies three comprehensive goals with respect to Port planning, environment, operation, and public access, which incorporate a series of objectives.

1. The Port will seek to protect, maintain, enhance and restore the overall quality of the coastal environment, its natural as well as man-made resources.
 - Improve and/or maintain air and water quality.
 - Enhance regional aesthetics.
 - Preserve existing fish nursery areas and indigenous water habitats.
 - Maintain significant natural habitats which exist in the Port.
2. The Port will seek to facilitate the highest and best utilization of its unique and limited coastally dependent resources and uses.
 - Continue to assume the leadership and initiative in determining and regulating the use of land and water in the Harbor District.
 - Remain sensitive to the needs of communities and agencies adjacent to the Harbor District.
 - Maintain the ability to accommodate various types of commodities.
 - Improve industry-serving surface transportation to and from the Harbor.
 - Minimize safety problems involving hazardous cargo.

- Encourage energy conservation in Port facilities.
 - Remain current with the needs of the market area.
 - Provide superior facilities such as deep water channels and berths to accommodate the latest trends in shipping technology.
 - Provide efficient intermodal transfer of cargo by providing access for necessary types of transportation.
 - Maintain a program to acquire/develop key land parcels to protect existing developments and provide for new development as required to serve Port tenants.
 - Curb misuse of land through the prevention of inappropriate developments.
 - Foster and encourage development of commerce and navigation.
3. The Port will promote and support public access to water and land areas within its jurisdiction, and encourage inter-agency and community cooperation in this endeavor.
- Improve public serving surface transportation to and from the Harbor.
 - Preserve cultural resources.
 - Minimize social disruption in areas surrounding the Port.
 - Enhance visual quality.
 - Maintain existing recreation areas.
 - Upgrade recreational facilities.
 - Cooperate with other agencies and the community in the study and development of Harbor District resources.
 - Insure public access to waters and land areas in the Harbor District consistent with safety and security, including bicycle access.
 - Preserve, foster and encourage development of sports-fishery resources and recreation facilities, including small boat facilities.

LAND AND WATER USE DESIGNATIONS

The conventional terminology utilized to identify land uses in the City's General Plan of Land Use is not adequate to articulate the uses which are found in the Port. For example, the majority of the Port is encompassed in a general land use designation entitled "Harbor, Airport and Freeway District" in the General Plan of the City. The General Plan also identifies "Mixed Tourist/Recreational" and "Open Space and Park" uses, covering both land and water areas, but provides no designations for other non-recreational water uses.

The Port over the years has defined a set of functional land and water uses that encompass the development of particular projects in the Port. These designations and an operational description of what they include are presented here to satisfy the requirement of the Coastal Act that a port master plan shall include a description of proposed land and water areas, where known (Chapter 2, Section 30711(a)). It is intended that these designations shall amend the less definite designations of the General Plan with respect to Port uses, and that they shall facilitate the subsequent discussion which treats the functional distribution of these uses among various planning districts within the Port.

Land Uses

Primary Port Facilities are those areas primarily dependent on access to water frontage. Typically Primary Port facilities include shiploading/unloading facilities, transshipment warehouses, stevedoring operations, open storage and transfer areas for cargo, and industrial operations primarily engaged in the shipment of goods and raw materials.

Petroleum Import/Export Facilities are those operations and terminals engaged in the loading/unloading, storage and transfer of crude and refined petroleum products. These facilities are normally included in Primary Port operations, but because of the hazardous nature of the cargoes and the fact that these projects constitute a majority of Port tonnage, they have been categorized separately.

Port-Related Industries and Facilities are those areas that do not require access to berthing facilities or waterfrontage, but are heavily dependent on primary Port operations. This dependency necessitates the siting of Port-related uses within the Harbor District. These uses include warehousing, distribution centers, container storage, railroad facilities, container freight stations, ship chandlers, offices of public agencies involved in Port activities, and processing operations whose products or raw materials normally move through the Port.

Commercial/Recreational Facilities denote those areas primarily serving the general public. These areas could include water-oriented parks, sightseeing, sportfishing areas, restaurants, hotels, curio shops, marinas, boat sales and manufacturing, charter boat operations, tackle shops, and other special tourist attractions such as the Queen Mary.

Federal Use denotes areas occupied for various activities such as shipyard and drydock operations, base and support operations, and storage of reserve vessels by the Navy, Coast Guard and other federal agencies.

Oil and Gas Production designates major areas utilized for oil and gas production, tankage and processing plants, drilling sites and injection wells. Major installations and multiple wells may exist in other land use areas. These areas will exist in the Port until such a time as the oil and gas have been depleted, or have become uneconomical to produce.

Utilities designate areas utilized for surface installations and rights-of-way of public utilities. These uses can and will occur in conjunction with other Port land uses. Utilities include storm drain, gas water electrical, sewage, telephone, bunkering and oil transmission systems. The Southern California Edison combined cycle generating station on Terminal Island is included in this category.

Non-Port Related Areas designate those portions of the Harbor that are devoted to other activities other than Port-related, primary Port, etc. Typically these areas might include light industries, businesses, auto salvage, and repair shops.

Water Uses

Anchorage Area designations within the Port are presently under review by the Corps of Engineers, the Coast Guard, both Ports, and the Navy. New designations are to be based on the following anchorage assignment categories: anchorage for 24-hour limited stay; commercial and recreational anchorage with no bunkering or lightering activities; anchorage for lightering and bunkering; deep draft anchorage with 48 hour limit; anchorage for vessels with a draft over 40 feet and/or 800 feet in length; and anchorage for vessels outside the breakwater.

Maneuvering Areas include those water areas needed for the handling, turning and maneuvering of vessels either entering or leaving the Port complex. Sufficient turning basins must be available to enable a vessel to be turned completely around. Typically a maneuvering basin will service a group of berths.

Navigable Corridors include all channels used for the movement of vessels into and out of the Port. The main navigable corridors include the Long Beach Main Channel, Back Channel, Cerritos Channel, and Channels Two and Three.

Recreational/Sportfishing areas designate those open and sheltered water areas that are used predominately for recreational and sport-fishing activities. Queensway Bay and some Outer Harbor waters have typically been used in this manner.

PLANNING DISTRICTS

The Port has been subdivided into eleven geographical and functional planning areas, defined by physical constraints and configurations of land and water areas. These planning areas will be termed "districts" for the purposes of this Plan (see Figure 7). The boundaries of these districts serve functional purposes by consolidating similar and compatible land and water uses, to encourage maximum utilization of existing Port facilities, to increase cargo handling efficiency, to promote multi-company use of terminals, and to separate hazardous cargo areas from other areas of the Port.

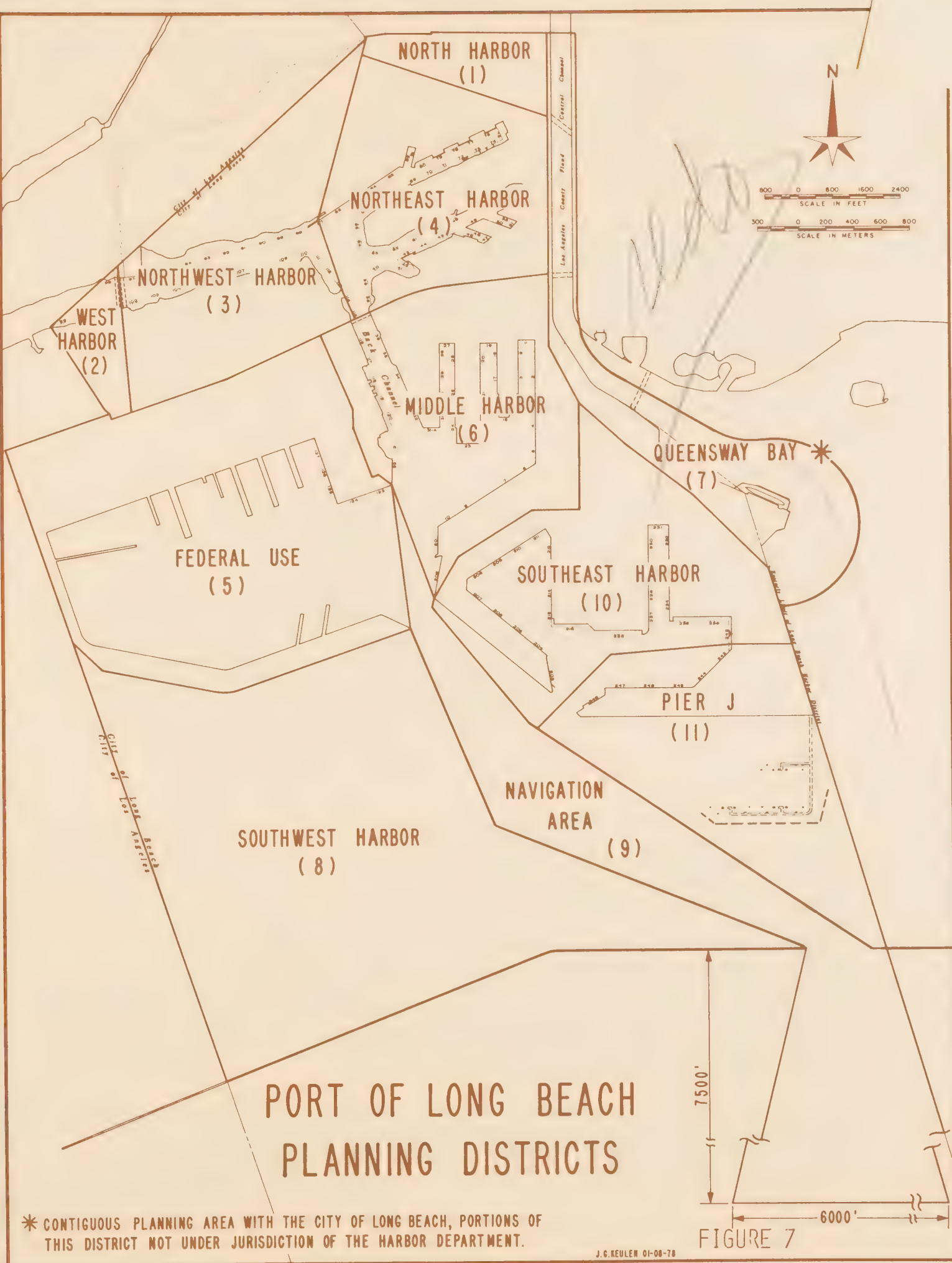
Each planning district is analyzed from three sequentially related perspectives: the present setting, the short term planning scenarios, and the long term planning scenarios. The present setting, referred to simply as "setting" describes the boundaries of the district, and includes a discussion on its predominant natural, functional and developmental features.

The short term planning scenarios, referred to simply as "short term", describe the plan or project which can currently be projected based on such factors as trends in commodity activity, ship characteristics, and coastal and environmental policies. This encompasses approximately the five year timeframe previously identified. Facility modifications and developments anticipated in this timeframe are outlined for each planning district.

The long term planning scenarios, referred to simply as "long term" describe only obvious or general long range trends in Port planning. More detailed scenarios defy conceptualization due to the variability of the commodity flow structure, supply and demand trends, and the ambiguity of resource management policies and objective in the long term. Therefore, the description tends to be simplistic.

Both short term and long term scenarios are based on issues pertaining to the social, economic and environmental climate, including:

- land available for acquisitions and conversion from oil production and existing open water areas.
- land costs.
- maximization of existing facilities.
- improvement and further development of intermodal transportation systems.
- demand for facilities.



* CONTIGUOUS PLANNING AREA WITH THE CITY OF LONG BEACH, PORTIONS OF THIS DISTRICT NOT UNDER JURISDICTION OF THE HARBOR DEPARTMENT.

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FIGURE 7

- lease agreements.
- maintenance and enhancement of air and water quality.
- demand for recreational and commercial activities.

These scenarios for the eleven planning districts have been evolved after careful consideration of the many factors and issues discussed in the Introduction. They represent a balanced rational and comprehensive approach appropriate to the orderly planning and development of land and water uses in the Port. A synopsis of the existing and short term uses is given in Tables 1 and 2, respectively.

North Harbor, District No. 1

Setting

This area is bounded on the north by Anaheim Street, on the west by the westerly side of Carrack Avenue, on the south by the northerly property line of the Southern Pacific railroad storage yard, and on the east by the westerly boundary of the Los Angeles County Flood Control Channel. The area encompasses approximately 30 hectares of land devoted primarily to non-Port uses. There is no waterfront access for this area. Presently, light industry, small commercial activities, restaurants, salvage yards, and miscellaneous non-Port-related activities occupy the majority of this District. Many of the buildings in this area are old and in need of rehabilitation or revitalization.

Short Term

Due to blight and deterioration in much of the area, a proposal has been made to upgrade the District into a Port-related light industry area that more efficiently makes use of the existing land from both a physical and economic point of view. The land could be used as a back-up storage area for berthing facilities located along Channel Two, intermodal transfer and marshalling area for containerized and unitized cargoes, or light industry serving the needs of the commercial shipping industry. This could be accomplished primarily by removing some of the existing buildings and facilities and revitalizing others, to provide for the activities discussed above. There will be some impedence to redevelopment created by existing oil and gas production facilities.

As the need for Port facilities increases, the Harbor Department is faced with the problems of trying to find land for both Primary, as well as Port-related developments. This can be accomplished in three ways: building new landfills,

TABLE 1
PORT OF LONG BEACH
EXISTING USE OF LAND AND WATER

	West Harbor		North West Harbor		North East Harbor		Middle Harbor		Federal Use Area		Queensway Bay		South East Harbor		Pier J District		Navigation Area		South West Harbor		North Harbor		Totals	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
LAND USE																								
Primary Port	11	11%			65	10%	325	49%							132	20%							533	7%
Petroleum Import/Export					45	7%	20	3%															65	1%
Port Related					365	57%					140	51%	439	61%									804	11%
Commercial/Recreational																							140	2%
Federal Use									535	51%													535	7%
Oil Production	44	45%	369	66%	13	2%	70	10%	20	2%	2	1%											515	7%
Utilities			81	15%									40	6%									121	2%
Non-Port Related	22	22%																			73	100%	73	1%
LAND USE TOTAL	77	78%	450	81%	488	76%	415	62%	555	53%	142	52%	479	67%	132	20%	2	2%	0	0%	73	100%	2811	39%
WATER USE																								
Anchorage																			818	50%			818	11%
Short/Long Term																			818	50%			818	11%
Hazardous/Lightering																							252	4%
Deep Draft							140	21%							112	17%								
Recreational/Commercial									491	47%			18	2%	6	1%							541	3%
Maneuvering					11	2%	12	2%					222	31%	406	62%	747	100%					1739	24%
Navigation Corridors	19	19%	100	18%	143	22%	102	15%															142	2%
Recreational/Sportfishing	3	3%	7	1%							132	48%												
WATER USE TOTAL	22	22%	107	19%	154	24%	254	38%	491	47%	132	48%	240	33%	524	80%	747	100%	1636	100%	0	0%	4310	61%
TOTAL LAND AND WATER	99	100%	557	100%	642	100%	669	100%	1046	100%	274	100%	719	100%	656	100%	747	100%	1636	100%	73	100%	7121	100%

TABLE 2																									
PORT OF LONG BEACH																									
SHORT TERM USE OF LAND AND WATER																									
	West Harbor		North West Harbor		North East Harbor		Middle Harbor		Federal Use Area		Queensway Bay		South East Harbor		Pier J District		Navigation Area		South West Harbor		North Harbor		Totals		
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	
LAND USE																									
Primary Port	11	11%	100	18%	65	10%	325	49%							152	23%							693	70%	
Petroleum Import/Export					45	7%	20	3%							108	17%							173	27%	
Port Related							365	57%					439	61%									804	11%	
Commercial/Recreational											140	51%											140	1%	
Federal Use									535	51%													535	8%	
Oil Production	44	45%	269	48%	13	2%	70	10%	20	2%	2	1%											418	6%	
Utilities													40	6%									40	0%	
Non-Port Related	22	22%	81	15%																73	100%		95	1%	
LAND USE TOTAL		77	78%	450	81%	488	76%	415	62%	555	53%	142	52%	479	67%	260	40%	0	0%	0	0%	73	100%	2,434	41%
WATER USE																									
Anchorage																									
Short/Long Term																			818	50%			818	11%	
Hazardous/Lightering																			818	50%			818	11%	
Deep Draft							140	21%							112	17%							252	4%	
Recreational/Commercial																									
Maneuvering					11	2%	12	2%	491	47%			18	2%	6	1%							541	7%	
Navigation Corridors	19	19%	100	18%	143	22%	102	15%					222	31%	278	42%	747	100%					1611	23%	
Recreational/Sportfishing	3	3%	7	1%							132	48%											142	2%	
WATER USE TOTAL		22	22%	107	19%	154	24%	254	38%	491	47%	132	48%	240	33%	396	60%	747	100%	1636	100%	0	0%	4182	50%
TOTAL LAND AND WATER		99	100%	557	100%	642	100%	669	100%	1046	100%	274	100%	719	100%	656	100%	747	100%	1636	100%	73	100%	7121	100%

intensifying existing developments, and/or expanding the Harbor complex in areas that are not predominately used for Port operations. With respect to the North Harbor District, the second and third approaches are the most viable alternatives. Intensification of existing facilities will occur in this area, however, the Port anticipates the need to expand the Port jurisdiction to the north, encompassing the area north of Anaheim Street, west of the Los Angeles County Flood Control Channel boundary, south of Pacific Coast Highway and east of the City of Long Beach jurisdictional boundary line. This area could be needed toward the end of the scheduled 5 year timeframe of this Master Plan. This area could provide additional facilities for Port-related developments such as storage for unitized and containerized cargo arriving at Outer and Inner Harbor berthing terminals, container freight stations, warehouses and other Port-related manufacturing operations. The Westside Redevelopment Plan of the City encompasses development in this area. The Port and the Redevelopment Agency shall coordinate their activities to assure consistency and to avoid conflicts of uses.

Long Term

Anticipated long term options for this area are much the same as the above. The Port will continue to provide new facilities where possible and intensification of existing areas for Port-related activities.

West Harbor, District No. 2

Setting

The area is bounded on the north and west by the boundary line of the cities of Los Angeles and Long Beach, on the south by the northerly side of Ocean Boulevard and on the east by the westerly side of the Terminal Island freeway. The Cerritos Channel with a water depth of -14.6 meters (MLLW) crosses the northern portion of the area. The southern portion is devoted to crude oil production with the exception of a chemical bulk import terminal occupying Berth 101. Much of the undeveloped area is oily or contaminated with salt residue and discarded junk. There is some sparse vegetation consisting of common weeds and shrubs. Due to subsidence the area is at an elevation below mean lower low water (MLLW).

Short Term

The water frontage and adjacent back area west of the chemical bulk terminal on Cerritos Channel are suited for a one berth Primary Port facility. A unitized cargo berth will probably best utilize the existing area with minor alterations to oil production activities. Unit items such as lumber or automobiles could be stored among the existing oil wells. If oil production equipment was consolidated or removed, a container terminal could be developed, possibly in conjunction with the container terminal located to the west in the Port of Los Angeles. Minor dredging alongside the westerly berth area would be necessary to ensure adequate depth for ocean going vessels calling at the berth.

Long Term

This area would continue to be used in the same manner as the short term scenario. As oil wells become depleted or consolidated more of the area could be used for Primary Port and Port-related activities.

Northwest Harbor, District No. 3

Setting

This area is bounded on the north and west by the boundary line of the cities of Los Angeles and Long Beach, on the west by the westerly side of the Terminal Island freeway, on the south by the northerly side of Ocean Boulevard and the Gerald Desmond Bridge, and on the east by the center of the Back Channel and its northerly prolongation to its intersection with the southerly extension of Carrack Avenue, and then up the westerly side of Carrack Avenue.

This portion of the Harbor includes a large portion of the Cerritos Channel and about 72 hectares of land on Terminal Island and 91 hectares between the Channel and the north-eastern Harbor District boundary. Nearly all of the land in this portion of the Harbor is private property with the majority of the area devoted to crude oil production. There are no Primary Port facilities here. The largest development is the Southern California Edison generating station. Two small craft berthing facilities occupy part of the water space along the channel, numerous oil and gas pipelines cross under the channel and the Southern California Edison Company transmission line and right of way traverses the area from south to north. Much of the area is below MLLW due to subsidence. Terrestrial flora and fauna are sparse and no important nesting or feeding ground is found here.

Short Term

Until such a time as the oil fields become depleted, approximately 20 to 30 years, there is a low potential for development of bulk terminal or unitized cargo storage operations. A bulk terminal could be sited along the north side of the Cerritos Channel with railroad access from the railroad classification yards to the north. The development of a larger contiguous marshalling area would necessitate the consolidation of existing oil production equipment.

Long Term

Upon removal of crude oil production facilities, 5 to 6 operating cargo berths could be constructed along the Cerritos Channel. Because of the large backland adjacent to the Channel, these areas would be particularly suited for container, unitized cargo and dry bulk terminal operations. It would be necessary to widen the Cerritos Channel approximately 30 meters and dredge to a depth of -20 meters (MLLW), to allow safe navigational passage for ships transiting between the ports of Long Beach and Los Angeles.

Northeast Harbor, District No. 4

Setting

This area is bounded on the north by the northerly property line of the Southern Pacific railroad storage yard; on the west by the westerly side of Carrack Avenue, and its prolongation southerly to the intersection with the extension of the centerline of the Back Channel, and then along the centerline of the Back Channel; on the south by the northerly side of the Gerald Desmond Bridge and Ocean Boulevard; and on the east by the westerly boundary of the L.A. County Flood Control Channel.

This is the oldest part of the Harbor. It contains a substantial amount of privately owned land with a great diversity of land use. Most of the non-coastal-dependent activities occurring in the Harbor are concentrated here (except crude oil production) as well as most of the coastal-dependent ancillary functions of the Port.

Presently, this area is used for small industries, crude oil production, ship building and repair, waterfront contractor equipment and staging yards, warehousing, and petroleum storage facilities. Some Primary Port facilities are located in this part of the Harbor to handle petroleum bulk, dry bulk and general cargo. All of these facilities, except for petroleum bulk, handle relatively small quantities of cargo per year.

Due to the high percentage of private development, the physical configuration of the area, and the existence of oil production facilities, there are severe limitations on the use of this land for future cargo handling operations. Channel widths and depths effectively limit the size of vessels that can operate in this part of the Harbor.

Short Term

The prevalence of private land abutting the channels makes it extremely difficult to dredge deeper or wider channels to increase use by larger ships. Land is fairly well developed, although some of the activities are not coastal-dependent.

Crude oil production facilities are concentrated in some parts of this section of the Harbor and are expected to remain for about 20 to 30 years.

A small portion of this area may be redeveloped, or enhanced for Primary Port operations, and increased tonnage capacities. However, the majority of this District should be directed toward providing facilities for ancillary Port activities. Intensification of Primary Port activities can result in the following developments: The overall utilization of Berth 83 and the adjacent back area, can be improved by extending the Berth 83 wharf to the northeast and modifying the use of the back area; slip No. 5 can be filled to increase the backland at Berths 53 and 54 and to lengthen the berthing space along those berths so that additional vessels can be accommodated; by filling subsided land at the end of the 7th Street peninsula (Berths 61-67), a terminal could be developed to handle dry bulk, general cargo or non-hazardous liquid bulk; the reconstruction of this area would require abandonment or consolidation of existing oil wells; the remaining waterfrontage not designated for berthing cargo vessels can be used for auxillary craft such as tugs, dredges, and oil spill cleanup equipment.

Since this part of the Port cannot readily be redeveloped or enhanced for Primary Port operations, it becomes desirable for siting ancillary Port facilities which are coastal-dependent. The list of activities requiring such facilities includes ship-building and repair, towboat and salvage operations, bunker barge loading, sportfishing landing, marine research, Coast Guard operations, marine-oriented fire protection, storage of equipment for dredging and waterfront construction, and harbor maintenance. When these activities are concentrated in areas less suited for development or enhancement for Primary Port purposes, the more desirable areas are freed for use as Primary Port facilities.

Long Term

A long term goal of the Port is to encourage segregation and isolation of hazardous cargoes in districts remote from highly populated residential and employment areas. The handling of bulk petroleum falls under the category of hazardous cargoes as defined by the Code of Federal Regulations. As leases on petroleum terminals in the Northeast Harbor come up for renewal, the Port may require relocation of these facilities to areas that are less congested and more removed from other commodity types and land uses. The eventual relocation of these terminals would allow for major redevelopment of Channel Two and the land directly adjacent to the north.

Widening Channel Two and clearing the land will allow for the development of compatible Primary Port facilities such as container, dry bulk or unitized cargo operations. A project of this type would require extensive land and berth modifications as well as channel dredging.

Federal Use, District No. 5

Setting

This area is bounded on the north by the boundary line of the cities of Los Angeles and Long Beach, and the northerly sides of Ocean Boulevard and the Gerald Desmond Bridge; on the west by the boundary line of the cities of Los Angeles and Long Beach; on the south by southerly limit of the Navy mole; and on the east from the westerly side of Pier E Avenue to the intersection of Berths 122 and 123 and then south to the mole light. This District is principally used by the U.S. Navy for shipyard base operations and storage of reserve vessels. In addition, there is scattered oil production equipment just south of Seaside Boulevard and along Pier E Avenue. The land has subsided to an elevation of -1.5 meters MLLW throughout much of the area, with the exception of the eastern portion which was filled to approximately +5m. Water depths in this basin range from -11 to -15 meters.

Short Term

Within the scope of the Port Master Plan the most realistic scenario for the Federal Use area is continued use for Naval support activities, including servicing of the Naval fleet by the shipyard. Operations, especially vessel movements, could in fact become intensified if national security problems arise. In addition, the shipyard would be needed to service a greater volume of vessels and the Naval Station would be needed for processing Naval personnel.

Long Term

The long term use of this area is expected to be the same as for the short term. However, if the Navy were to vacate their facilities, the shipyard could be modified and expanded to handle the construction and maintenance of deep draft cargo vessels. These operations could be run by private concerns or by the Port. A new basin devoted to Primary Port operations could be developed by expanding the width of the mole, if the Navy were to abandon their existing facilities. With minimal land fill and dredging this basin would be particularly suited to deep draft, petroleum and dry bulk operations.

Middle Harbor, District No. 6

Setting

This area is bounded on the north by the northerly sides of the the Gerald Desmond Bridge and Ocean Boulevard; on the west by the westerly side of Pier E Avenue down to the intersection of Berths 122 and 123, then south to light No. 6 (pilot station); on the south from light No. 6 along the centerline of Panorama Drive to Windham Avenue; and on the east from the intersection of Panorama and Windham, north along the westerly side of Windham to the centerline of Harbor Scenic Drive then along the west side of the Los Angeles County Flood Control Channel. The majority of the land in this portion of the Harbor was developed for break bulk, and general cargo operations. As cargo handling techniques have moved steadily toward containerization, these facilities have become underutilized. There are 12 transit sheds or warehouses located in this District, as well as extensive oil production equipment, railroad trackage, bulk loaders, and oil import terminals.

This part of the Harbor was greatly affected by land subsidence due to its proximity to the center of the subsidence "bowl". A major portion of the facilities were constructed during the heaviest subsidence period leaving some wharves too high and others too low, making cargo operations difficult under extreme tidal conditions. Water depths in this District range from -9 to -18 meters MLLW.

Short Term

On a short term basis, additional modern cargo operations could be conducted in the Middle Harbor with relatively minor alterations to terminal facilities or land use. Removal of transit sheds, and warehouses, relocation of roads and utilities, and strengthening of wharves could yield larger more workable open cargo storage areas, particularly suited to moderately sized container, ro-ro, unitized or dry bulk operations. These

facilities would not have the cargo handling potential of the larger terminals developed in the Southeast Basin. However, Primary Port operations of this scale would greatly enhance the cargo throughput potential of the Middle Harbor. Only minor dredging and wharf modifications would be needed in order to accommodate the expected ships.

Due to the narrowness of the Back Channel and the increased width of ships calling at Port terminals, vessels planning to transit the Back Channel could frequently experience delays. The Port anticipates either moving terminal facilities south and/or indenting Berth 118 to the west, thereby, improving vessel movements and safety. Queuing in the anchorage areas and waiting at berth in the Inner Harbor would be reduced substantially by the latter improvements.

Long Term

Changes in the use of land and water areas are not anticipated in the long term due to the limitations resulting from the physical configurations of land and water areas in this District. The only major change that could occur would be the filling of the slips between Piers A, B, C, and/or D.

Queensway Bay, District No. 7

Setting

This area is bounded on the north by the northerly side of Anaheim Street; on the west by the westerly boundary of the Los Angeles County Flood Control Channel, then along the centerline of Harbor Scenic Drive to the easterly limit of the Long Beach Harbor District; on the east from the northerly side of Anaheim Street down the easterly limit of the Long Beach Harbor District to the point where it intersects the centerline of Queensway Bay, then east along that centerline to a tangent with the easterly limit of the Queen Mary Complex; on the south by an arc of approximately 4,000 foot diameter struck between the centerline of Queensway Bay and the THUMS parking lot.

The northerly portion of this District contains the Los Angeles County Flood Control Channel which separates the residential and commercial areas of the City on the east and the industrial area of the Harbor on the west. Toward the south the District contains primary access roads, oil production facilities including pipelines from offshore oil operations, recreation facilities, hotels, and some open area. It is ideally suited for development as a buffer between the activities of the industrial Port and the residential community of Downtown Long Beach.

Hotels, restaurants, and public viewing and fishing areas have been established in this portion of the Harbor District as recreational facilities. The Queen Mary* complex, is also included in this District because it is contiguous to recreational activities existing in the Port. Crude oil production facilities in this area have an expected life of about 20 years. Landscaping around the recreation facilities has been accomplished; the open area in the north portion of the District is unlandscaped.

Short Term

This area will continue as a recreational buffer between Downtown and Port operations. Commercial/ recreational activities will be intensified in this area by the addition of the Queensway Bay Marina complex, maintenance and enhancement of the promenade and bicycle path along the entire east side of the Port's jurisdiction, construction of additional hotels, restaurants and shops, and the addition of facilities for recreational fishing. Landscaping will be enhanced in this area to provide visual and acoustical screening between the recreational facilities and Port industries.

There is also a potential for developing a passenger terminal for West Coast cruise ship operations and a ferry facility from the Downtown Shoreline. This could be developed in conjunction with activities occurring onboard or surrounding the Queen Mary complex. This type of development would increase the utilization of the existing area, while providing public facilities that do not presently exist in the Port of Long Beach.

Shuttle service between the Queen Mary and Downtown also could be developed by either an aerial tram or a monorail, either of which could be designed using existing structures, e.g., Queensway bridge.

Existing oil operations are expected to continue. This includes certain activities in support of offshore oil operations.

Long Term

No significant change is anticipated in the use of land and water areas beyond the above mentioned short term developments. Development of the short term scenario should provide maximum utilization of this area.

*The Master Plan includes the Queen Mary and certain adjacent facilities based on the anticipated decision to transfer same to the jurisdiction of the Board of Harbor Commissioners during the first quarter of 1978.

Southwest Harbor, District No. 8

Setting

The Southwest Harbor is an open water area lying south of the Navy mole, east of the City of Long Beach boundary, north of the Federal Breakwater, and west of the Navigation area. Water depths in this area range from -9 to -22 meters MLLW.

The primary function of this area is for the anchoring of large, ocean-going vessels waiting for a berth, held in quarantine by the U.S. Public Health Service, awaiting orders, or taking on ships stores. Recreational boating and fishing activities also occur in this area, as well as access for vessels moving between the Port of Long Beach and the Port of Los Angeles.

Short Term

There are no major changes anticipated in the use of this area for the short term. The area is presently used for the anchorage of vessels calling on Port terminals. The Coast Guard is investigating the possibility of redesignating these anchorages by type and duration of stay. This project if pursued, would improve the operational efficiency of anchorage sites.

Long Term

Should additional cargo handling facilities be needed in the Harbor in the future, this area is particularly suited for the development of Primary Port facilities for use by deep draft vessels. The eventual development of Primary Port facilities in this basin would be consistent with the policies of the Port and Coastal Commission to encourage maximum utilization of existing, deep-draft port areas. Operations requiring shallower drafts should be situated in those Port areas that do not have deep-draft capabilities.

This District when needed for expansion will be planned and designed in such a way as to be compatible with activities in the Port of Los Angeles; to provide continued access inside the breakwater for shipping and recreational activities; to preserve tidal circulation and flushing; and to provide continued space for anchorage of ocean going cargo vessels. Ongoing studies by the U.S. Army Corps of Engineers at their Vicksburg, Mississippi Waterways Experiment Station, are concerned with the configurations of land masses in Los Angeles and Long Beach harbors and their effects on tidal circulation and wave oscillation. These continuing studies will aide the Port in making decisions concerning future developments in San Pedro Bay.

Navigation Area, District No. 9

Setting

This area is bounded on the north by the intersection of Berths 122 and 123; on the west by the easterly line of the Federal Use District and Southwest Harbor District; on the south by the Long Beach Pilot Cruising Area, beyond the breakwater; and on the east by the westerly limits of the Middle, Southeast and Pier J districts.

The Navigation Area contains the Main Channel linking Queens Gate to other portions of the Harbor. This channel provides direct deep draft access to the Southeast Basin, the Middle Harbor, the Federal Use and the Southwest Harbor. Water depths presently in the Main Channel range from 18.8 to 21.3 meters.

Short Term and Long Term

The Navigation Area will continue to act as a corridor for vessels entering or leaving the Port complex. The only foreseeable change in this area would be the eventual dredging of the Channel within the range of -26 to -28 meters to provide continued access for modern, deep draft, cargo vessels. The estimated timeframe for this project is really a function of when the shipping industry will need deep draft facilities. At this time, it would appear that the Channel deepening would occur beyond the 5 year scope of this Plan.

Southeast Harbor, District No. 10

Setting

This area is bounded on the north by the southerly limits of the Middle Harbor District; on the west by the easterly limits of the Navigation Area; on the south by the centerline between the Pier F light and Pier J west light from the easterly limits of the Navigation Area to a point 1000 feet due north of Berth 249 then to the center of the THUMS parking lot; and on the east from the intersection of Harbor Scenic Drive and Windham south along the centerline of Harbor Scenic Drive to the easterly limits of the Long Beach Harbor District, then along these limits to the center of the THUMS parking lot. The Southeast Harbor District encompasses Piers F and G and portions of Piers A and J. Water depths in this District range from -14 to -17 meters MLLW with most berths capable of handling ships to 12 meters draft and 300 meters in length. Primary Port activities are the predominate land use in this District.

The structural features include transit sheds and warehouses for general cargo operations; dry bulk buildings for the storage of grain and coke; container freight stations and scales for containerized cargo operations; specialized equipment and buildings; Port-related office buildings; and oil production equipment. Recreational fishing and viewing occur on the east side of Pier J along the rock dike.

Short Term

At the present time, this is the heart of the Port, containing waterways and berths capable of handling modern deep draft vessels. Cargo transfer facilities, gantries, bulkloaders and other specialized equipment are of the latest design. The backland to berth ratio is well balanced for present and expected cargo movements. The open storage areas have the capability of handling diverse commodity types; thereby, allowing for flexibility and maximization of Port facilities. The Port is continually re-evaluating these facilities to ensure that the latest advancements in operations, environmental control and navigational aides are incorporated. At the present time, additional capacity may be required for a few terminals but basically this area is fully developed for Primary Port facilities. No major changes in land use are anticipated. Recreational facilities such as promenades, bicycle paths and fishing areas are anticipated along the east side of this District in conjunction with the recreational facilities occurring in Queensway Bay District. Some dredging and limited wharf expansion maybe required adjacent to the wharf areas for maintenance and to facilitate continuing shipping operations.

Long Term

No significant changes in the use of land and water areas in this District are anticipated.

Pier J, District No. 11

Setting

This area is bounded on the north and northwest by the southerly limits of the Southeast Harbor District; on the west by the the easterly limits of the Navigation Area; on the south by the easterly corner of Queens Gate; and on the east by the limits of the Long Beach Harbor District. The Pier J District encompasses the southern part of Pier J land area, as well as the water areas lying just south of that pier. The land is presently used for container operations, auto imports, Port-related office buildings, and oil production.

The open water area is used for the anchorage of cargo vessels, an access route for boats servicing the offshore oil islands, and an area for recreational boating. Recreational fishing and public viewing of Port activities occur along the rock dike on the east side of Pier J.

Short Term

Berths 243 through 247 were originally designed for moderately sized general cargo operations. By the time the land was ready for development the trend had shifted from general cargo terminals to large container operations. At first, the available land was sufficient to handle industry demands. Now, however, the berth length to backland ratio is such that these facilities are becoming congested and inefficient. The Port has two options for increasing the utilization of these container terminals. The first option would be the filling of the water area south of Pier J in order to provide the necessary backland to realize the full cargo potential. The second approach would encompass the construction of high rise vertical stacking facilities for container storage. Upon completion of the economic, environmental and engineering impact studies the Port will be able, to determine which alternative development best utilizes the Ports resources.

In addition, the area south of Pier J is also suited for the development of facilities for the use of deep draft vessels and hazardous cargo operations. Terminals built at this location would have several advantages over Inland Harbor sites; namely, less congestion, deeper water, shorter distances to shipping lanes and room for maneuverability. This would be an excellent site for a multi-company, multi-berth petroleum import terminal.

Due to the remoteness of this District from residential and commercial areas of Long Beach, it would be an excellent location for hazardous cargo operations. Older Inner Harbor petroleum facilities could be relocated here, thereby reducing the risk of explosion hazards in the Inner Harbor area.

Long Term

Providing all of the planned projects are developed within the 5 year timeframe, no further intensification of development or change in the use of land and water areas is anticipated for this planning district.

ANTICIPATED PORT PROJECTS

The purpose of this section is to briefly describe Port projects which are underway or are anticipated in the next 5 years. It should be noted, however, that these projects could change or new projects could be added depending on the economic climate. The following discussion will include both appealable and non-appealable projects as discussed in Chapter 8 of the 1976 California Coastal Act. Figure 8 identifies the locations of these proposed projects.

Non-Appealable Projects

Pier D Bulkloading Facility Modernization

The proposed project involves the construction of four 50,000 ton capacity silos, eight 15,000 ton capacity silos, a double loop railroad tract, railroad car dump, travelling shiploader and associated transfer and load-out buildings. The facility is designed to handle bulk chemical products, such as soda ash and potash, and will be located on Pier D at Berths 33 and 34. The products will be shipped by rail to the Port of Long Beach; from Long Beach, the majority of products will be transported by a dedicated 57,000 DWT intercoastal vessel and a few smaller foreign flag ships. The project includes removal of the existing bulkloading equipment at Berths 28 and 29.

Pier C Terminal Modernization

This modernization project consists of removing existing loading docks; regrading and repaving at Berths 19, 21, 24, 26 and 27; construction of a wharf for Ro-Ro vessels at Berth 24; modifying the transit shed end doors at Berths 20, 21; removing a portion or all of the transit shed at Berth 24 and 25; installation of reefer outlets; upgrading the area lighting; relocation and installation of additional security fencing; strengthening the wharf at Berths 24, 25 and 26 to accommodate container cranes; the installation of crane rails and power trench; and other miscellaneous work.

Pier J Land Completion

This project consists of the construction of a 50 to 110 acre landfill immediately south of Pier J by the construction of diking and hydraulic filling. Construction of this land is for backland support of existing Berths 243 to 247.



Grain Terminal Modernization

This project currently under construction, consists of upgrading the entire shipping and handling system of the Koppel Bulk Grain Terminal at Pier A, Berths 210 to 211. The modernization is for compliance with the standards, rules, and regulations of the Southern California Air Quality Management District, the U.S. Department of Agriculture, and the State of California Department of Industrial Relations Code, Title 8. In using the latest state-of-the-art grain handling and dust control equipment, a more efficient operation, emitting little or no pollutants, will result.

Town Lot West Redevelopment

This project, currently underway, consists of the redevelopment of approximately 10 hectares of the westerly portion of the Town Lot bounded by Seaside Boulevard on the south, Water Street on the north, the Back Channel on the west, and the Los Angeles Flood Control Channel on the east. The redevelopment will consist of grading and paving, installation of lighting and other utilities, fencing, roadway construction, relocation of a 24-inch water main and construction of such facilities as may be required by Port tenants.

Fireboat Station #15

This project will include the construction of a fireboat station in the Southeast District to replace the existing, outdated station on Pier C. The reason for this relocation is to provide more efficient service to a larger portion of the Harbor.

Fireboat Station #20

This project will include the reconstruction of the existing fireboat station at Berth 37 in the Inner Harbor or a replacement station at Berth 35 on the Back Channel. The existing station was originally placed in service as a temporary facility. Subsidence, and length of service, have rendered both the station and the boat shelter "outdated". The City of Long Beach Fire Department has requested the replacement of both stations.

North Harbor Redevelopment

The principal objective of the North Harbor redevelopment project is to remove the physical, economic, and social blight in the project area. The project will attempt to revitalize the

** These may not be constructed if*

area by removing the physically unsound structures, correcting environmental deficiencies, and reorganizing the area to provide viable industrial uses. This project is part of the larger City of Long Beach Westside Industrial Redevelopment Project, administered by the City Redevelopment Agency.

Pier G Container Gatehouse and Office Complex

This proposed project entails the construction of an additional gatehouse and operations office complex for more efficient utilization of the Pier G container terminals. No dredging or alterations to berth structures are anticipated.

Northeast Harbor Development

Several interrelated projects have been proposed for the Northeast Harbor area. One existing company, Long Beach Terminal Company has proposed the addition of 370,000 barrels of petroleum storage capacity to their tank farm, and the expansion of barge operations at Berth 83. They have also proposed to expand their operations by placing larger pipelines to the berth; increasing their truck loading/unloading facility; constructing a rail car unloading facility; and providing miscellaneous ancillary facilities and equipment. Berth 83 is also used by National Gypsum Co., Weyerhouser, and Fremont Forest Products. To improve the utilization of the area adjacent to Berth 83, the Port is considering relocating the two lumber operations across the channel to the Southern Pacific parcel at the end of the 7th Street Peninsula; assuming that land is available and the area can be upgraded for lumber unloading and marshalling. The area behind Berth 83 and the adjacent wharf could then be modified for a more intensified usage such as automobile handling.

Northwest Harbor Development

Most of the land area within the Northwest Harbor area is owned by Union Pacific and is presently utilized for oil production. If the Port of Long Beach can buy this land, the area can be upgraded for Port operations. Fill would be required to correct for subsidence. Wharf structures would need to be constructed on both sides of Cerritos Channel, with the possibility of widening and dredging the Channel to -45 ft to accommodate ships. The area, if upgraded, would be best suited for unitized and containerized general cargo operations, and for bulk cargo operations such as a coal export terminal.

Landscaping/Recreation of Pier J

The easterly boundary of Pier J, from the Los Angeles River to the southerly tip of Pier J, has been set aside for public commercial/ recreation. The area is to be landscaped, walkways built, seating provided, and access allowed along the waters edge for fishing. Much of the landscaping in the area north of the Queen Mary has already been finished and the section south of the Queen Mary is proposed to be completed in the near future.

Queensway Bay Passenger Terminal

This project, will provide improved access to Port recreation facilities. The proposed project involves the construction of approximately 300 meters of wharf just north of the Queen Mary for the berthing of passenger cruise ships. In addition, two 75 meter trestles would be required for the embarking of passengers between the wharf and the Queen Mary, as well as, staging areas on various decks of the Queen Mary. Only minor maintenance dredging adjacent to the rock dike would be necessary. A hydraulic model study will be required to examine the effects of the Los Angeles River and wave action at the site.

Queensway Plaza Hotel

The existing Hilton Hotel south of the Queensway Bridge was the first phase of a two phase development of the north Pier J area. The second phase of this project included another hotel with restaurants. One restaurant has been built and the second hotel is now being proposed north of the Queensway Bridge. Developments of this sort are in keeping with the recreational aspects of Pier, J as discussed earlier. Both hotels have been approved by the Coastal Commission.

Dredging

The need to dredge Cerritos Channel has been discussed above in the discussion on the Northwest Harbor. In addition, maintenance dredging will be performed within the Harbor under an existing Corps permit as the need develops. Some dredging under this project has already been completed. As a separate project, the Port of Long Beach intends to enlarge the Main Channel to within the range of -26 to -28 meters depth and 305 meters in width; a project requiring over 11.5 million cubic meters of dredge material.

Appealable Projects

Tanker Terminals

The project consists of four to six tanker berths south of Pier J with mooring and breasted dolphins in a 610 meter wide basin with a 1280 meter long slip and 20 meters of water below MLLW at pierhead line; approximately 1524 meters of trestle between the berthing area and Pier J; a breakwater approximately 1372 meters long immediately south of the berthing area; and site preparation for a 1,800,000 barrel storage capacity tank farm. In addition, approximately 2.3 million cubic meters of dredging will be required.

Two of the berths will be leased to SOHIO for Alaskan oil importation. The remaining four berths would be made available to other companies for the use in crude oil importation.

Macmillan Marine Tanker Terminal

The proposed project consists of the construction of a marine terminal at Pier A, Berth 202 or the use of one of the Pier J Basin berths. The terminal will accommodate tankers up to 165,000 DWT in size. Associated pipelines would allow the unloading of crude oil to Macmillan Ring Free Oil Company's inland tank farm near their Carson Refinery, approximately 5 miles north of the Port.

Queensway Bay Marina

The proposed Queensway Bay Marina consists of a 571-slip small boat marina in the northeast section of the Long Beach Harbor District, northwest of the Queen Mary complex. Construction is to include approximately 838 meters of floating and rock breakwater, a 3.7 acre mole, public comfort stations, parking for 373 automobiles, and miscellaneous ancillary facilities. A minor amount of filling and dredging could be associated with this project.

As an alternative to the marina, a proposal has been submitted to provide boat mooring buoys within the same general area of the marina. Modification of the land area would provide for support facilities such as a launching ramp, repair shop, water taxi services, comfort stations, and miscellaneous ancillary facilities.

Pier E Modifications

The proposed project involves construction and operation of a 42 inch, welded steel pipeline, including all necessary valves and appurtenance, from Pier E, Berth 118, primarily for the

transport of waterborne crude oil supplies to Shell and ARCO refineries in Carson. The total pipeline length is 5.3 miles. It will cross the Cerritos Channel in a 4.6 meter deep subterranean trench which would be dredged to 24 meters and backfilled to 20 meters after placement of the pipe.

Another project, at the same location, involves indenting the wharf itself and extending the facility south to include the area now leased to Suma Corporation. With these modifications, Pier E would be able to accommodate two berths for tanker off-loading.

Bait Fishing Relocation

As part of the modernization project for Pier J (discussed earlier), the facilities for the Seal Beach sportfishing bait operation will be removed. In order to compensate for that business, the Long Beach Harbor Department has proposed to relocate the buildings and boat slips to the south end of Pier G at Berth 216. The project would be a complete transfer of the operation from one location to another.

UAB
Suma

PUBLIC PARTICIPATION AND IMPLEMENTATION

In an effort to provide a broad information base for the formulation of the Master Plan, a high degree of public and interested agency participation has been encouraged through workshops and tours of the Port. The Port's participation in meetings of the Local Coastal Program Advisory Committee, as addressed in the Introduction, has also proved invaluable in the preparation of the Port Master Plan.

Workshops and Tours

Two workshops designed to provide an overview of Port operations and physical attributes were held for interested parties and the general public.

The first workshop included a summary of the hydraulic model study of San Pedro Bay performed by the Army Corps of Engineers. The presentation was made by Dr. Robert Whalin of the Waterways Experiment Station, Vicksburg, Mississippi. The Port's Commerce Division staff presented a summary of the contents of the proposed Master Plan, followed by a public discussion. The ideas and questions generated by this discussion provided a useful commentary on the Master Plan.

The second workshop included a presentation on commercial pilotage procedures used within the Port, and a discussion of present operational aspects of the Port and marine commerce. After the presentations were received additional input was obtained from the public and interested parties.

Two Harbor bus tours were provided for interested individuals and groups. The two tours were well attended, and provided participants with a first hand review of Port operations. In addition, a boat tour was scheduled for the public and members of the Local Coastal Program Committee to provide an overview of the Port.

Master Plan Approval Process

The Coastal Act of 1976 and the California Environmental Quality Act of 1970, as amended, and the related State and local guidelines require achieving certain milestones in the approval process. The general sequence to be followed for this Plan and EIR is:

1. Completion of the Draft document and issuance of a Notice of Completion;
2. Circulation of the Draft Master Plan and related EIR in accordance with CEQA;
3. Submittal of the Draft document for informal review by the Coastal Commission;
4. Conducting a Public hearing on the Draft Master Plan and related Draft EIR;
5. Preparation of responses to comments and final revisions to the Master Plan and related EIR;
6. Formal submittal of the Master Plan for approval by the Coastal Commission;
7. Certification and adoption of the Master Plan and related Final EIR by the Board of Harbor Commissioners.

Prior to the Coastal Commission's first public hearing, the Executive Director of the Coastal Commission will provide a summary of the Port Master Plan to those parties known to be interested. This summary will contain an initial recommendation as to whether the Master Plan should be certified or rejected in whole or in part.

At the close of the Coastal Commission's public hearing(s), the Executive Director, after consultation with the Regional Executive Director, shall make a written recommendation to the Commission prior to its vote.

The Commission shall take action on the Port Master Plan within ninety days of submission pursuant to Public Resources Code, Section 30714.

Permit Authority

Following acceptance of the Port Master Plan by the Coastal Commission, permit authority for all non-appealable projects

within the Port's jurisdiction will reside in the Board of Harbor Commissioners Permit authority for all appealable projects, if appealed, resides with the Coastal Commission. If an appealable project is not appealed, permit authority remains with the Board of Harbor Commissioners. When an appealable project has been approved by the Port governing body, that body shall notify the Coastal Commission and all other interested persons and organizations of the project approval. Within this notice of approval shall be information describing the project, its relation to the Master Plan and consistency with the Coastal Act of 1976. The approval of any appealable project shall become effective after the 10th working day following receipt of the notice by the Coastal Commission unless an appeal is filed within this time.

Implementation and Procedures for Permit Application and Approval

The permit application must satisfy certain informational requirements concerning any proposed development. These requirements can be found in Article 2 of Chapter 5 of the Coastal Commission's Permit and Port Planning Regulations. These regulations specify such items as descriptions of the project and proposed site, a description of legal interest, a certification of truth and accuracy, the format of documents, and other specific information as required.

After an applicant has satisfied the informational requirements, the permitting process may begin. The Port governing body shall review the proposed project as to its conformity with the certified Master Plan. If the project fails to conform to the Master Plan requirements, the applicant may be required to make adjustments. The determination of appealable or non-appealable will be made by the Port as defined by the Coastal Act of 1976.

If the project is deemed appealable, notice must be issued to the Commission and other interested parties. Appealable projects will be subject to review under the California Environmental Quality Act (CEQA). The Port will determine whether an Environmental Impact Report or Negative Declaration must be filed, or whether the project is exempt under CEQA. A non-appealable project also will be reviewed under CEQA.

If any project is denied under CEQA or Coastal Act regulations, reasons will be cited.

Following staff review of a project, a report including recommendations by the staff shall be submitted to the Board of Harbor Commissioners.

The rationale for the recommendations also will be included in this report. At least one public hearing will be scheduled on the proposed project. The project may be approved, amended, denied, or referred back to staff for further action.

CONFORMANCE OF MASTER PLAN WITH COASTAL ACT POLICIES

Port Master Plan certification by the California Coastal Commission requires the establishment by that body of the findings specified in Division 20, Chapter 8, Section 30714 of the Coastal Act of 1976, which are as follows:

- (a) The Master Plan or certified portions thereof conforms with and carries out the policies of this chapter (Chapter 8).
- (b) Where a master plan or certified portions thereof provides for any of the developments listed as appealable in Section 30715 of this chapter, such development or developments are in conformity with all of the policies of Chapter 3 (commencing with Section 30200) of this division (Division 20).

The review which follows addresses both the Master Plan as a single project and the particular projects described in the Plan. It identifies pertinent Coastal Act policies and discusses how the Master Plan and projects respond to these policies, especially with regard to "appealable projects".

The immediate objectives are to present as succinctly as possible the responses of the Port regarding consistency of the Master Plan and projects with pertinent policies of the Coastal Act, to facilitate the Coastal Commission's review and consideration of the Port Master Plan for certification, and to establish the intent of the Port to implement the policies of the Coastal Act.

Chapter 1 Findings and Declarations and General Provisions

Section 30001.5

Policy:

30001.5. The Legislature further finds and declares that the basic goals of the state for the coastal zone are to:

- (a) Protect, maintain, and where feasible, enhance and restore the overall quality of the coastal zone environment and its natural man-made resources.
- (b) Assure orderly, balanced utilization and conservation of coastal zone resources taking into account the social and economic needs of the people of the state.

- (c) Maximize public access to and along the coast and maximize public recreational opportunities in the coastal zone consistent with sound resources conservation principles and constitutionally protected rights of private property owners.
- (d) Assure priority for coastal-dependent development over other development on the coast.
- (e) Encourage state and local initiatives and cooperation in preparing procedures to implement coordinated planning and development for mutually beneficial uses, including educational uses, in the coastal zone.

Response:

These basic goals, as presented in Chapter 1 of the Coastal Act, are enunciated in greater detail in the policies of Chapter 3 with respect to appealable projects in the Port, and in the policies of Chapter 8 with respect to both appealable and non-appealable projects in the Port. This discussion is restricted to a more general treatment of the ways in which the Master Plan conforms to the basic goals.

The Master Plan addresses the protection, maintenance, and enhancement of the quality of the coastal zones natural and man-made resources in a number of ways, and provides the mechanism for continued planning and management of these resources. It expands the area designated for open space and recreational uses in the Port. It proposes to utilize existing land resources more efficiently, controlling the demand for increased fill areas in the Port and the related impacts. It proposes the development of a Risk Management Plan to facilitate the effective control and management of specified potential hazards in the Port. Water monitoring programs in association with various projects in the Port are currently providing updated information on the water quality conditions as a basis for the regulation of project impacts. All projects in the Port have been and are now being evaluated according to the requirements of CEQA.

The Port Master Plan assures an orderly balance between the utilization and conservation of coastal resources by assessing social and economic as well as environmental needs in the Port. Tourist and recreation opportunities in the Port are enhanced and expanded by the proposed plan. Port related industrial facilities are planned to satisfy anticipated market and commodity demands on international, national, state, and local levels. Stricter controls on environmental impacts of proposed projects are proposed by the Port in conformance with

Coastal Act policies to maintain and enhance biological productivity, water quality and air quality in the area.

Public access to the coastal resources is enhanced by the Port Master Plan through new and expanded recreational opportunities, improved roadways, walkways, and bicycle paths, all consistent with public safety.

Primary consideration is given in the Port Master Plan to coastally dependent resources such as shipping, wharfs, and facilities which directly or indirectly serve as Port-related uses, or uses requiring close proximity to ocean waters and the shoreline. Recreational boating activities are also given priority in a proposed marina, as is fishing.

The Port has actively sought to cooperate in its planning and development efforts with other pertinent agencies. Port uses, especially planned recreational and tourist uses, will complement the uses planned under the Local Coastal Program for the Downtown shoreline of Long Beach. Port staff have participated in meetings of the Local Coastal Planning Committee and the Port has given due consideration to various local concerns for extended uses in the Port. Additionally, the Port has held workshops to inform the public and various agencies of its plans, and to receive comments. The Port Master Plan and the Risk Management Plan incorporate procedural considerations for both planning and development in the interests of safety and security in the Port and City of Long Beach, as well as other local, state and federal agencies.

Chapter 3 Coastal Resources Planning and Management Policies

Section 30200

Policy:

30200. Consistent with the basic goals set forth in Section 30001.5, and except as may be otherwise specifically provided in this division, the policies of this chapter shall constitute the standards by which the adequacy of local coastal programs, as provided in Chapter 6 (commencing with Section 30500), and, the permissibility of proposed developments subject to the provisions of this division are determined. All public agencies carrying out or supporting activities outside the coastal zone that could have a direct impact on resources within the coastal zone shall consider the effect of such actions on coastal zone resources in order to assure that these policies are achieved.

Response:

This Master Plan and the accompanying documents, the Environmental Impact Report, and the Risk Management Plan directly address the effects of activities associated with Port planning and proposed projects, discuss their impacts, if any, upon coastal zone resources, and describe procedures and activities proposed to assure that the pertinent Coastal Act policies are pursued. This discussion of conformance is intended to highlight the ways in which the Plan satisfies these policies.

Sections 30210-30213 (Public Access)

Policy:

30210. In carrying out the requirement of Section 2 of Article XV of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.

30211. Development shall not interfere with the public's right of access to the sea where acquired through use, or legislative authorization, including but not limited to, the use of dry sand and rock coastal beaches to the first line of terrestrial vegetation.

30212. Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where (1) it is inconsistent with public safety, military security needs, or the protection of fragile coastal resources, (2) adequate access exists nearby, or, (3) agriculture would be adversely affected. Dedicated accessway shall not be required to be opened to public use until a public agency or private association agrees to accept responsibility for maintenance and liability of the accessway.

Nothing in this division shall restrict public access nor shall it excuse the performance of duties and responsibilities of public agencies which are required by Section 66478.1 to 66478.14, inclusive, of the Government Code and by Section 2 of Article XV of the California Constitution.

30212.5. Wherever appropriate and feasible, public facilities, including parking areas or facilities, shall be distributed throughout an area so as to mitigate against the impacts, social and otherwise, of overcrowding or overuse by the public of any single area.

30213. Low cost visitor and recreational facilities and housing opportunities for persons of low and moderate income shall be protected, encouraged and, where feasible, provided.

Developments providing public recreational opportunities are preferred. New housing in the coastal zone shall be developed in conformity with the standards, policies, and goals of local housing elements adopted in accordance with the requirements of subdivision (c) of Section 65302 of the Government Code.

Response:

The Master Plan discusses issues related to public access, describes existing conditions of access, and proposes a number of activities by which public access to the Port may be increased consistent with safety and protection of coastal resources. Highway, bicycle and pedestrian access are addressed. Areas where access is restricted due to hazardous materials and operations are identified. Expansion of public facilities, and extension of bicycle paths, and road improvements are proposed to facilitate public access.

Public safety and liability are major aspects discussed in the Master Plan as constraints on unrestricted public access. The Risk Management Plan addresses these issues in greater detail with regard to goals, objectives and procedures for information, planning, management, and enforcement.

Sections 66478.1 to 66478.14 of the Government Code, "Public Access to Public Resources" establish the standards for public access to which local governments are required to conform. Sections 66478.9 and 66478.10 exempt electrical power generating facilities and industrial subdivisions which front on public waterways, rivers, or streams from required public easements along portions of the banks of those waterways, rivers or streams. Section 66478.4(b), 66478.11(b), and 66478.12(b) specify that "reasonable public access" shall be determined by the local agency with respect to subdivisions in their jurisdiction. Furthermore, the following considerations are established for the determination of "reasonable access":

- (1) The access may be by highway, foot trail, bike trail, horse trail, or any other means of travel.
- (2) The size of the subdivision.
- (3) The type of river bank and the various appropriate recreational, educational and scientific uses including, but not limited to swimming, diving, boating, fishing, water skiing, scientific collection and teaching.

The Master Plan discusses these considerations with respect to access and responds with some proposals which should satisfy the determination of reasonable access overall, while balancing the needs for public safety and security from potential hazards with regard to the siting and design of proposed projects.

The expansion of tourist and recreational uses in the Port is planned to provide adequate parking, restroom and other ancillary facilities to serve the public. Recreational facilities planned in the Downtown Shoreline of Long Beach will be complemented by related Port uses, thereby distributing public uses and access throughout the area.

Housing facilities are specifically excluded from the Port area by Tidelands legislation enforced by the State Lands Commission. This legislation permits commerce, navigation and fishery uses as they have been interpreted by the Commission and Attorney General opinions. Hotels, however, have not been excluded by the legislation since they constitute commercial uses and encourage greater public access and utilization of coastal resources.

Sections 30220 - 30224 (Recreation)

Policy:

30220. Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.

30221. Oceanfront land suitable for recreational use shall be protected for recreational use and development unless present and foreseeable future demand for public or commercial recreational activities that could be accommodated on the property is already adequately provided for in the area.

30222. The use of private lands suitable for visitor-serving commercial recreational facilities designed to enhance public opportunities for coastal recreation shall have priority over private residential, general industrial, or general commercial development, but not over agriculture or coastal-dependent industry.

30223. Upland areas necessary to support coastal recreation uses shall be reserved for such uses, where feasible.

30224. Increased recreational boating use of coastal waters shall be encouraged, in accordance with this division, by developing dry storage areas, increasing public launching facilities, providing additional berthing space in existing harbors, limiting non-water-dependent land uses that congest access corridors and preclude boating support facilities, providing harbors of refuge, and by providing for new boating facilities in natural harbors, new protected water areas, and in areas dredged from dry land.

Reponse:

Existing and proposed recreational activities in the Port as described in the Port Master Plan are primarily water-oriented. These include boating, water skiing, sailing, diving, swimming, fishing, marine biological studies, as well as sightseeing of coastal resources. The Port Master Plan proposes to protect and enhance these resources and activities, while discouraging the introduction of non-water-oriented recreational activities, especially those which would displace water-oriented activities or coastally dependent industry and commerce.

The Port consists of both public and private land holdings. Public holdings are operated both directly by public agencies and indirectly through leases, subleases and franchises by private operators and utilities. The areas designated for recreational uses are primarily in the publicly held areas, since privately held lands are being extensively utilized and planned for coastally dependent industrial type uses. The Coastal Act policies give priority to such coastal-dependent industries. The Port's jurisdiction is generally restricted to coastal areas. However, the City of Long Beach has an extensive program to provide for recreational opportunities and facilities not only along the coast, but in upland areas as well. This program should provide support for the many non-coastally related recreational activities which are needed by the public. The Port Master Plan will ultimately be incorporated with the Local Coastal Plan of Long Beach, providing a comprehensive proposal for recreational activities in the local coastal area.

The Port Master Plan proposes the development of marina and related boating facilities in the area between the Queen Mary and the Queensway Hilton, referred to as the Queensway Bay Marina. A preliminary plan and environmental impact report were prepared for this site, however, changes are anticipated before the final proposal is completed.

At one time the City of Long Beach proposed a major marina on the east side of Pier J. This project was later dropped as infeasible because of costs associated with dredging and filling at this site. Since a strip of land along the east side of Pier J has been designated for recreational use, it has been suggested that facilities should be provided nearby for a West Coast and Harbor cruise ship and a boat shuttle from the Downtown Shoreline. Mooring type docking facilities, also being considered in the area, are addressed in the Master Plan.

Section 30230

Policy:

30230. Marine resources shall be maintained, enhanced, and, where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long term commercial, recreational, scientific, and educational purposes.

Response:

The marine resources and biological productivity of the Port of Long Beach have been improving since the major pollution abatement program began about 20 years ago. As water quality in the Harbor improved, the ecology also improved to the point where now the Harbor is an important fish nursery area and feeding area for the California Brown Pelican. Because of the importance of this relationship between water quality and biological productivity, the Long Beach Harbor Department is not proposing in this Master Plan any projects which are associated with an ocean discharge. Landfill projects will be designed to maintain good water circulation, since circulation is important for water quality. The Pier J completion project has been shown through the Army Corps of Engineers' model study to allow a continued good circulation in the Outer Long Beach Harbor.

Section 30231

Policy:

30231. The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface waterflow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

Response:

This section is similar to Section 30230, above, in that biological productivity is related to good water quality. There are no new waste water discharges proposed in this Master Plan. The Harbor District does not have a runoff problem except in some older

ment project is currently being implemented with the support of Tidelands funds. The ground water is unuseable because of salt water intrusion. Water entrainment is a feature of the Southern California Edison generating plant's once-through cooling system. SCE has a study underway to determine any significant effects from this system. If the study shows a significant effect, the system may be replaced by an alternative such as a cooling tower or freshwater system.

Section 30232

Policy:

30232. Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.

Response:

This section is similar to Section 30707 on tanker terminals. Harbor Department policies call for adequate mitigations on all petroleum related projects to protect the environment from accidents through preventive measures and contingency plans. This Master Plan proposes centralizing oil receiving facilities; a feature which will minimize the potential for spills and facilitate easier cleanup. Liquefied natural gas (LNG) or related projects are not anticipated for the Port of Long Beach within the scope of this Master Plan. Various local, state, and federal agencies have developed oil spill contingency plans. Private petroleum facility operators in the Port generally have developed contingency plans of their own. The Coast Guard's Captain of the Port, Los Angeles/Long Beach, Pollution Contingency Plan is a primary instrument for the effective containment and cleanup of spills in the area. The Port tariff No. 3 contains regulations governing spills. The proposed Risk Management Plan will provide a comprehensive approach to the management of hazards in the Port.

Section 30233

Policy:

30233. (a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible, less environmentally damaging alter-

native, and where feasible, mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:

- (1) New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.
- (2) Maintaining existing, or restoring previously dredged, depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.
- (3) In wetland areas only, entrance channels for new or expanded boating facilities; and in a degraded wetland, identified by the Department of Fish and Game pursuant to subdivision (b) of Section 30411, for boating facilities if, in conjunction with and maintained as a biologically productive wetland; provided, however, that in no event shall the size of the wetland area used for such boating facility, including berthing space, turning basins, necessary navigation channels, and any necessary support service facilities, be greater than 25 percent of the total wetland area to be restored.
- (4) In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities.
- (5) Incidental public service purposes, including, but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.
- (6) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.
- (7) Restoration purposes.
- (8) Nature study, aquaculture, or similar resource-dependent activities.

(b) Dredging and spoils disposal shall be planned and carried out to avoid significant disruption to marine and wildlife habitats and water circulation. Dredge spoils suitable for beach replenishment should be transported for such purposes to appropriate beaches or into suitable longshore current systems.

(c) In addition to the other provisions of this section, diking, filling, or dredging in existing estuaries and wetlands shall maintain or enhance the functional capacity of the wetland or estuary. Any alteration

of coastal wetlands identified by the Department of Fish and Game, including, but not limited, to the 19 coastal wetlands identified in its report entitled, "Acquisition Priorities for the Coastal Wetlands of California", shall be limited to very minor incidental public facilities, restorative measures, nature study, commercial fishing facilities in Bodega Bay, and development in already developed parts of South San Diego Bay, if otherwise in accordance with this division.

Response:

The only project which will involve dredging is the Pier J Basin Oil Terminal, which is listed as acceptable under Section 30233(a)(1). As noted in the discussion of Section 30705, dredging and spoils disposal will be regulated by the Port and other responsible agencies so as to assume compliance with Section 30233(b). There will be no conflict with Section 30233(c), since no existing wetland or estuary will be affected by proposed diking, filling or dredging activities.

Section 30234

Policy:

30234. Facilities serving the commercial fishing and recreational boating industries shall be protected and, where feasible, upgraded. Existing commercial fishing and recreational boating harbor space shall not be reduced unless the demand for those facilities no longer exists or adequate substitute space has been provided. Proposed recreational boating facilities shall, where feasible, be designed and located in such a fashion as not to interfere with the needs of the commercial fishing industry.

Response:

Although there are no commercial fishing industries in the Port of Long Beach, there are sportfishing and recreational boating facilities. As the Harbor Department develops the Inner Harbor area, some recreational boating space will need to be removed due to obsolescence and operational hazards. However, in keeping with this section of the Coastal Act. The Queensway Bay Marina is being proposed to replace existing and to provide new recreational boating facilities. Coastally dependent industries will have priority in the Inner Harbor over recreational facilities. This priority is especially important in reducing the demand for additional fill and dredging activities and in improving safety in the Port by making more effective use of existing land and water areas, consistent with the policies of Chapter 8, and Sections 30222 and 30255.

Section 30235

Policy:

30235. Revetments, breakwaters, groins, harbor channels, seawalls, cliff-retaining walls, and other such construction that alters natural shoreline processes shall be permitted when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply. Existing marine structures causing water stagnation contributing to pollution problems and fish-kills should be phased out or upgraded where feasible.

Response:

A breakwater is proposed for the Pier J Basin and another may be required for the Queensway Bay Marina. Design of these structures will be such that natural shoreline processes are not altered; in fact, it already has been determined that the Pier J Basin breakwater will have little or no effect on the existing hydrology of the Harbor through extensive study at the WES of the Army Corps of Engineers. The breakwater for the proposed Queensway Bay Marina, if required, will receive similar close scrutiny. Both projects will serve coastal-dependent uses and there will be no adverse impact on local shoreline sand supply. No existing structures in the Port of Long Beach have been implicated in serious stagnation problems or fishkills. However, should such a finding be made in the future, structures involved will be phased out or upgraded, where feasible.

Section 30236

Policy:

30236. Channelizations, dams, or other substantial alterations of rivers and streams shall incorporate the best mitigation measures feasible, and be limited to (1) necessary water supply projects, (2) flood control projects where no other method for protecting existing structures in the flood plain is feasible and where such protection is necessary for public safety or to protect existing development, or, (3) developments where the primary function is the improvement of fish and wildlife.

Response:

No projects or structures are proposed under this Master Plan which would entail substantial alteration of any river or stream, or for that matter, of any other waterway, other than maintenance activities and operations discussed under responses to sections 30233 and 30705.

Section 30240

Policy:

30240. (a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on such resources shall be allowed within such areas. (b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade such areas, and shall be compatible with the continuance of such habitat areas.

Response:

There are no environmentally sensitive habitat areas designated within the Port of Long Beach. This Master Plan calls for the development of the Queensway Bay Planning District as a buffer between the Port's industrial activity and City of Long Beach commercial, recreation and tourist activities to the north and east.

Section 30241

Policy:

30241. The maximum amount of prime agricultural land shall be maintained in agricultural production to assure the protection of the areas agricultural economy and conflicts shall be minimized between agricultural and urban land uses through all of the following:

- (a) By establishing stable boundaries separating urban and rural areas, including, where necessary, clearly defined buffer areas to minimize conflicts between agricultural and urban land uses.
- (b) By limiting conversions of agricultural lands around the periphery or urban areas to the lands where the viability of existing agricultural use is already severely limited by conflicts with urban uses and where the conversion of lands would complete a logical and viable neighborhood and contribute to the establishment of a stable limit to urban development.
- (c) By developing available lands not suited for agriculture prior to the conversion of agricultural lands.
- (d) By assuring that public service and facility expansions and non-agricultural development do not impair agricultural viability, either through increased assessment costs or degraded air and water quality.

- (e) By assuring that all divisions of prime agricultural lands, except those conversions approved pursuant to subdivision (b) of this section, and all development adjacent to prime agricultural lands shall not diminish the productivity of such prime agricultural lands.

Response:

There are no prime agricultural lands within or around the Port of Long Beach.

Section 30242

Policy:

30242. All other lands suitable for agricultural use shall not be converted to non-agricultural uses unless: (1) continued or renewed agricultural use is not feasible, or (2) such conversion would preserve prime agricultural land or concentrate development consistent with Section 30250. Any such permitted conversion shall be compatible with continued agricultural use on surrounding lands.

Response:

There are no lands suitable for agricultural use within the Port of Long Beach.

Section 30243

Policy:

30243. The long term productivity of soils and timberlands shall be protected, and conversions of coastal commercial timberlands in units of commercial size to other uses or their division into units of non-commercial size shall be limited to providing for necessary timber processing and related facilities.

Response:

There are no timberlands within or around the Port of Long Beach.

Section 30244

Policy:

30244. Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.

Response:

There are no archaeological or paleontological resources as identified by the State Historic Preservation Officer within the Port of Long Beach.

Section 30250

Policy:

30250. (a) New development, except as otherwise provided in this division, shall be located within, contiguous with, or in close proximity to, existing developed areas able to accommodate it or, where such areas are not able to accommodate it, in other areas with adequate public services and where it will not have significant adverse effects, either individually or cumulatively, on coastal resources. In addition, land divisions, other than leases, for agricultural uses, outside existing developed areas shall be permitted only where 50 percent of the usable parcels in the area have been developed and the created parcels would be no smaller than the average size of surrounding parcels. (b) Where feasible, new hazardous industrial development shall be located away from existing developed areas. (c) Visitor-serving facilities that cannot feasibly be located in existing developed areas shall be located in existing isolated developments or at selected points of attraction for visitors.

Response:

The area occupied by the Port is largely man-made fill, and the existing land areas are considered developed, or in close proximity to development and committed to development. Future development will thus be contiguous with or close to existing development. The Master Plan and the EIR both address potential significant adverse effects of proposed projects, establish the intent of the Port to impose controls to minimize and mitigate any significant adverse effects, either individually or cumulatively. No agricultural uses exist or are anticipated in the Port area.

The Master Plan discusses proposed industrial developments which may be hazardous and addresses siting considerations for such facilities. Particular projects are identified which have been located away from existing developments for reasons of potential hazard. The Risk Management Plan described in the Appendices establishes goals and objectives for management of hazards in the Port, intended to be used as a basis for decision-making in the siting of proposed projects.

Visitor-serving facilities are addressed throughout the Master Plan under the headings of Recreation, Public Access, Planning Districts, and Environmental Impact Report. All such uses will be located in or close to existing developed areas, except where, for reasons of safety and land use conformity, they have generally been sited away from highly industrialized or hazardous Port uses. The facilities of this kind which are proposed will therefore constitute expansions of existing uses, or new uses which are contiguous with existing recreational and tourist type uses in the Port.

Section 30251

Policy:

30251. The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.

Response:

The Port is largely an industrialized area with no natural land forms. Primarily man-made, it has been extensively developed. The northern and eastern strands of the Port, roughly north and east of Harbor Scenic Drive are considered as visual resources, not only for the recreational and tourist facilities which they contain, but also because they offer expansive views and vistas of the shoreline, the City of Long Beach, and San Pedro Bay.

The Scenic Route Element of the City of Long Beach identifies two major scenic routes which traverse the Port, Harbor Scenic Drive and Ocean Boulevard. Harbor Scenic Drive has been well

landscaped and maintained for visual appeal. It serves as a visual barrier between the industrial and recreational uses located in this section of the Port, and is a factor in reducing incompatibility of adjacent uses.

Ocean Boulevard serves the Port via Queensway Bridge, a picturesque corridor between Downtown Long Beach and the Port, crossing over Queensway Bay. Another extension of Ocean Boulevard to the west includes the Gerald Desmond Bridge which provides an expansive view of the Ports of Long Beach, Los Angeles and Terminal Island. The entire Los Angeles County basin and Catalina Island can be viewed on a clear day from its high vantage point. A special event, sponsored by the Harbor Department during Christmas and New Years, provides a unique view of the areas described above. This event, called the "Harbor Lights Tour", consists of a scenic tour of the Harbor. The Queen Mary, the Oil Islands, and various structures in the Harbor are decorated with lights and ornaments for the occasion, which has become a seasonal attraction in Long Beach.

The older industrial portions of the Inner Harbor pose some particular visual problems in terms of blight and deterioration. The Harbor Department and the Redevelopment Agency share jurisdiction over developments in this area. The Master Plan discusses some proposals for establishing a program of renovation, reconstruction with standards and procedures for upgrading the visual quality of that area. The Redevelopment Agency is administering a plan called the Westside Redevelopment Plan whose primary objective is to eliminate and prevent the spread of blight and deterioration in the area and vicinity. The Agency has proposed a set of design standards for implementing this objective. The Port and the Redevelopment Agency will be cooperating to assure the conformance of development with the Port Master Plan and the pertinent policies of the Coastal Act.

Section 30252

Policy:

30252. The location and amount of new development should maintain and enhance public access to the coast by (1) facilitating the provision or extension of transit service, (2) providing commercial facilities within or adjoining residential development or in other areas that will minimize use of coastal access roads, (3) providing non-automobile circulation within the development, (4) providing adequate parking facilities or providing substitute means of serving the development with public transportation, (5) assuring the potential for public transit for high-intensity uses such as high-rise office buildings,

and by (6) assuring that the recreational needs of new residents will not overload nearby coastal recreation areas by correlating the amount of development with local park acquisition and development plans with the provision of on-site recreational facilities to serve the new development.

Response:

Transit services have been provided in and out of the Port by various sources in the past and as the demand for such services increases, the City and the Port of Long Beach intend to augment these services. Public bus service is available between Downtown Long Beach, a major juncture for various local and regional bus lines, and the Queen Mary. This system has been largely responsive to anticipated demands, especially on weekends. Other major sources of public transit to the Port include school and tour buses which bring thousands of visitors annually to the Queen Mary and Mary's Gate Village. These originate throughout the Los Angeles and Orange County region. Hotels in the area also provide limousine services. The Master Plan discusses a number of potential improvements in the transit system. First, as the demand for access between the Port and Downtown Long Beach increases with the development of new and expanded shopping, tourist and recreational facilities the City and the Port will cooperate in expanding public transit service into and between the two areas. Second, facilities are proposed both in the Port and along the Downtown shoreline for a boat shuttle to ferry passengers across Queensway Bay. This will provide additional scenic access as well as reducing the amount of automotive traffic between the two locations. Third, a West Coast and Harbor cruise facility, proposed in the vicinity of the Queen Mary, will give sightseers a unique opportunity to view the coastal resources. A long range proposal which has been considered is an aerial tramway across Queensway Bay.

Visitor-serving commercial facilities in the Port are and will be carefully regulated through leases and franchises. Strip commercial developments and developments which obstruct or interfere with coastally dependent uses, including recreational facilities, will be avoided. All tourist-commercial facilities will be sited in internally planned developments.

The Master Plan discusses plans and problems for non-automobile circulation. Promenades, bicycle routes and walkways both within the Port and between the Port and other areas are planned to be consistent with public safety and access. Marina facilities, boat shuttles, and ship cruises are among the alternatives to automobile circulation in the Port. Helicopter rides are also available from the vicinity of the Queen Mary.

At the present time, parking facilities in the Port, associated with visitor facilities are considered ample. As new and expanded developments take place, careful consideration will be given to parking adequacy and to alternative means of access to minimize the demand for parking space in the Port.

Section 30253

Policy:

30253. New development shall:

(1) Minimize risks to life and property in areas of high geologic flood and fire hazard.

(2) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.

(3) Be consistent with requirements imposed by an air pollution control district or the State Air Resources Board as to each particular development.

(4) Minimize energy consumption and vehicle miles traveled.

(5) Where appropriate, protect special communities and neighborhoods which, because of their unique characteristics, are popular visitor destination points for recreational uses.

Response:

The Port of Long Beach has had a good record in the management of various types of hazards, both natural and man-made. The Master Plan addresses the issues of Port security, risk management, hydraulic and seismic stability and safety, and government jurisdictions, rules and regulations with regard to the management of various hazards. Risks to life and property, structural stability, air quality, energy consumption, and preservation of natural resources are among the many factors considered in evaluating proposed land use. Furthermore, the environmental impact analysis of the Master Plan addresses significant environmental impacts and proposes mitigation measures to minimize these impacts. The Risk Management Plan described in Appendix A is intended as a dynamic management tool to assure that pertinent information, planning, management, and enforcement policies and procedures are incorporated into the Master Plan.

Section 30254

Policy:

30254. New or expanded public works facilities shall be designed and limited to accommodate needs generated by development or uses permitted consistent with the provisions of this division; provided, however, that it is the intent of the Legislature that State Highway Route 1 in rural areas of the coastal zone remain a scenic two-lane road. Special districts shall not be formed or expanded except where assessment for, and provision of the service would not induce new development inconsistent with this division. Where existing or planned public works facilities can accommodate only a limited amount of new development, services to coastal-dependent land use, essential public services and basic industries vital to the economic health of the region, state, or nation, public recreation, commercial recreation, and visitor-serving land uses shall not be precluded by other development.

Response:

Chapter 8, Section 30701, of the Coastal Act establishes that ports are essential to the national maritime industry. Also Chapter 2, Section 30114(b) specifically excludes the Port of Long Beach and any development within its jurisdiction from the definition of "public works". The intent is clear that ports are not to be directly associated with this policy, as regards the priority of public recreation, commercial recreation, and visitor-serving land uses over port-related developments which are coastal-dependent.

Section 30255

Policy:

30255. Coastal-dependent developments shall have priority over other development on or near the shoreline. Except as provided elsewhere in this division, coastal-dependent developments shall not be sited in a wetland.

Response:

The Port of Long Beach is clearly treated as a coastal-dependent planning area in the Coastal Act and is governed primarily by the findings, provisions, policies, and implementation procedures of Chapter 8 of the Act as discussed elsewhere in this text. Furthermore, no portion of the Port has been classified as a wetland.

Section 30260

Policy:

30260. Coastal-dependent industrial facilities shall be encouraged to locate or expand within existing sites and shall be permitted reasonable long-term growth where consistent with this division. However, where new or expanded coastal-dependent industrial facilities cannot feasibly be accommodated consistent with other policies of this division, they may nonetheless be permitted in accordance with this section and Sections 30261, and 30262 if (1) alternative locations are infeasible or more environmentally damaging; (2) to do otherwise would adversely affect the public welfare; and (3) adverse environmental effects are mitigated to the maximum extent feasible.

Response:

The Port of Long Beach is primarily an existing developed industrial site. The Port Master Plan attempts to accommodate new Port-related facilities within existing sites where feasible. The Plan is primarily concerned with a one to five year projection. In this context, no major growth beyond the present boundaries which would significantly impact coastal resources, is contemplated. Long range possibilities for growth in the Harbor are being assessed by the ports of Long Beach and Los Angeles and the Corps of Engineers.

Section 30261

Policy:

30261. (a) Multi-company use of existing and new tanker facilities shall be encouraged to the maximum extent feasible and legally permissible, except where to do so would result in increased tanker operations and associated onshore development incompatible with the land use and environmental goals for the area. New tanker terminals outside of existing terminal areas shall be situated as to avoid risk to environmentally sensitive areas and shall use a monobuoy system, unless an alternative type of system can be shown to be environmentally preferable for a specific site. Tanker facilities shall be designed to (1) minimize the total volume of oil spilled, (2) minimize the risk of collision from movement of other vessels, (3) have ready access to the most effective feasible containment and recovery equipment for oil spills, and (4) have onshore deballasting facilities to receive any fouled ballast water from tankers where operationally or legally required.

(b) Only one liquefied natural gas terminal shall be permitted in the coastal zone until engineering and operational practices can eliminate any significant risk to life due to accident or

until guaranteed supplies of liquefied natural gas and a distribution system dependent on liquefied natural gas are substantial enough that an interruption of service from a single liquefied natural gas facility would cause substantial public harm.

Until the risks inherent in liquefied natural gas terminal operation can be sufficiently identified and overcome and such terminals are found to be consistent with the health and safety of nearby human populations, terminals shall be built only at sites remote from human population concentrations. Other unrelated development in the vicinity of a liquefied natural gas terminal site which is remote from human population concentrations shall be prohibited. At such time as liquefied natural gas marine terminal operations are found consistent with public safety, terminal sites only in developed or industrialized port areas may be approved.

Response:

The Long Beach Harbor Department is encouraging multi-company use of existing and new tanker terminals. This Master Plan discusses two such co-use terminals; Pier E modification and the Pier J Basin tanker terminals. Both are proposed to accommodate several crude oil importing companies. Pier J would also allow for common carrier berths. Sections 30707 and 30232 address tanker terminals and the environmental safeguards to be built into Port terminals. See the responses provided to these policy sections.

With regard to LNG facilities, the Harbor Department does not anticipate any development of this type of operation within the scope of this Master Plan.

Section 30262

Policy:

Oil and gas development shall be permitted in accordance with Section 30260, if the following conditions are met:

- (a) The development is performed safely and consistent with the geologic conditions of the well site.
- (b) New or expanded facilities related to such development are consolidated, to the maximum extent feasible and legally permissible, unless consolidation will have adverse environmental consequences and will not significantly reduce the number of producing wells, support facilities, or sites required to produce the reservoir economically and with minimal environmental impacts.
- (c) Environmentally safe and feasible subsea-completions are used when drilling platforms or islands would substantially

degrade coastal visual qualities unless use of such structures will result in substantially less environmental risks.

- (d) Platforms or islands will not be sited where a substantial hazard to vessel traffic might result from the facility or related operations, determined in consultation with the United States Coast Guard and the Army Corps of Engineers.
- (e) Such development will not cause or contribute to subsidence hazards unless it is determined that adequate measures will be undertaken to prevent damage from such subsidence.
- (f) With respect to new facilities, all oil field brines are reinjected into oil-producing zones unless the Division of Oil and Gas of the Department of Conservation determines to do so would adversely affect production of the reservoirs and unless injection into other subsurface zones will reduce environmental risks. Exceptions to reinjections will be granted consistent with the Ocean Waters Discharge Plan of the State Water Resources Control Board and where adequate provision is made for the elimination of petroleum odors and water-quality problems.

Where appropriate, monitoring programs to record land surface and near-shore ocean floor movements shall be initiated in locations of new large-scale fluid extraction on land or near shore before operations begin and shall continue until surface conditions have stabilized. Costs of monitoring and mitigation programs shall be borne by liquid and gas extraction operators.

Response:

The Port of Long Beach is within a producing oil and gas field. Production has been taking place for many years and secondary recovery techniques are now being used in the field. While production is expected to continue for several years, no expansion of the field is anticipated. The existing operations are in conformance with this section of the Coastal Act.

Section 30263

Policy:

30263. (a) New or expanded refineries or petrochemical facilities not otherwise consistent with the provisions of this division shall be permitted if (1) alternative locations are not feasible or are more environmentally damaging; (2) adverse environmental effects are mitigated to the maximum extent feasible; (3) it is found that not permitting such development would adversely affect the public welfare; (4) the facility is not located in a highly scenic or seismically hazardous area, on any of the Channel Islands, or within or contiguous to environmentally sensitive areas; and (5) the facility is sited so as to provide a sufficient buffer area to minimize adverse impacts on surrounding property.

(b) In addition to meeting all applicable air quality standards, new or expanded refineries or petrochemical facilities shall be permitted in areas designated as air quality maintenance areas by the State Air Resources Board and in areas where coastal resources would be adversely affected only if the negative impacts of the project upon air quality are offset by reductions in gaseous emissions in the area by the users of the fuels, or, in the case of an expansion of an existing site, total site emission levels, and site levels for each emission type for which national or state ambient air quality standards have been established do not increase.

(c) New or expanded refineries or petrochemical facilities shall minimize the need for once-through cooling by using air cooling to the maximum extent feasible and by using treated wastes waters from inplant processes where feasible.

Response:

There are no appealable projects proposed in the Port Master Plan which include either refineries or petrochemical facilities subject to this section.

Section 30264

Policy:

30264. Notwithstanding any other provision of this division, except subdivisions (b) and (c) of Section 30413, new or expanded thermal electric generating plants may be constructed in the coastal zone if the proposed coastal site has been determined by the State Energy Resources Conservation and Development Commission to have greater relative merit pursuant to the provisions of Section 25516.1 than available alternative sites and related facilities for an applicant's service area which have been determined to be acceptable pursuant to the provisions of Section 25516.

Response:

One thermal electric generating plant exists in the Port, Southern California Edison's Terminal Island Facility. This facility was recently renovated with a new combined cycle generator system and no other major improvement is contemplated. The latter improvements are consistent with both Chapters 3 and 8 of the Coastal Act.

Chapter 8. Ports

Section 30703

Policy:

30703. The California commercial fishing industry is important to the State of California; therefore, ports shall not eliminate or reduce existing commercial fishing harbor space, unless the demand for commercial fishing facilities no longer exists or adequate alternative space has been provided. Proposed recreational boating facilities within port areas shall, to the extent it is feasible to do so, be designed and located in such a fashion as not to interfere with the needs of the commercial fishing industry.

Response:

The commercial fishing industry originally settled in the Port of Los Angeles, which was the first port to be developed in San Pedro Bay. Not wishing to needlessly duplicate facilities, the Port of Long Beach has stressed the development of commerce-related operations, rather than development of commercial fishing. Therefore, no provisions for development of commercial fishing facilities are contemplated in the Master Plan.

Section 30705

Policy:

30705. (a) Water areas may be diked, filled or dredged when consistent with a certified port master plan only for the following:

- (1) Such construction, deepening, widening, lengthening, or maintenance of ship channel approaches, ship channels, turning basins, berthing areas, and facilities as are required for the safety and the accommodation of commerce and vessels to be served by port facilities.
- (2) New or expanded facilities or waterfront land for port-related facilities.
- (3) New or expanded commercial fishing facilities or recreational boating facilities.
- (4) Incidental public service purposes, including, but not limited to, burying cables or pipes or inspection of piers and maintenance of existing intake and outfall lines.
- (5) Mineral extraction, including sand for restoring beaches, except in biologically sensitive areas.

- (6) Restoration purposes or creation of new habitat areas.
- (7) Nature study, mariculture, or similar resource-dependent activities.
- (8) Minor fill for improving shoreline appearance or public access to the water.

(b) The design and location of new or expanded facilities shall, to the extent practicable, take advantage of existing water depths, water circulation, siltation patterns, and means available to reduce controllable sedimentation so as to diminish the need for future dredging.

(c) Dredging shall be planned, scheduled and carried out to minimize disruption to fish and bird breeding and migrations, marine habitats, and water circulation. Bottom sediments or sediment elutriate shall be analyzed for toxicants prior to dredging or mining, and where water quality standards are met, dredge spoils may be deposited in open coastal water sites designated to minimize potential adverse impacts on marine organisms, or in confined coastal waters designated as fill sites by the master plan where such spoil can be isolated and contained, or in fill basins on upland sites. Dredge material shall not be transported from coastal waters into estuarine or fresh water areas for disposal.

Response:

Projects under the Master Plan which will require dredging/filling activities include the Pier J Basin, Pier E Modifications, Pier J Land Completion, widening and dredging of Cerritos Channel as a portion of the Union Pacific property development, regular maintenance dredging, and the deepening of the Main Channel. These activities all conform with Section 30705(a) (1) and (2). The Port will assure that appropriate design technology and methodology are employed in carrying out said activities so that the mandates of Sections 30705(b) and (c) are carried out. Moreover, all dredging/filling operations proposed by the Port are subject to review and/or regulation by several agencies, including but not limited to the Environmental Protection Agency, U.S. Army Corps of Engineers, California Regional Water Quality Control Board, and California Department of Fish and Game. Requirements imposed by these agencies regarding analyses, scheduling, regulation of operations, etc., as prerequisites for issuance of necessary permits for dredging/filling projects, will further insure compliance with Sections 30705(b) and (c). The Port will insure that no dredge material is transported from coastal waters into estuarine or fresh water areas for disposal, relative to projects under its jurisdiction.

Section 30706

Policy:

In addition to the other provisions of this chapter, the policies contained in this section shall govern filling seaward of the mean high tide line within the jurisdiction of ports:

- (a) The water area to be filled shall be the minimum necessary to achieve the purpose of the fill.
- (b) The nature, location, and extent of any fill, including the disposal of dredge spoils within an area designated for fill, shall minimize harmful effects to coastal resources, such as water quality, fish or wildlife resources, recreational resources, or sand transport systems, and shall minimize reductions of the volume, surface area or circulation of water.
- (c) The fill is constructed in accordance with sound safety standards which will afford reasonable protection to persons and property against the hazards of unstable geologic or soil conditions or of flood or storm waters.
- (d) The fill is consistent with navigational safety.

Response:

The Master Plan does not propose any major landfill projects in the short term. Any fill, regardless of size, would be analyzed to determine if it would meet the conditions listed above. In the long term the Southwest Harbor area may need to be re-examined in response to pressures for Port growth to determine the need for fill operations and the impacts of such actions. A fill operation which is contemplated in the short term is a 50 to 110 acre fill project called Pier J completion. This project is required in response to the need for expanded transfer and marshalling facilities for container operations on the southwest end of Pier J. The project will be designed for conformance with the Coastal Act and CEQA.

Section 30707

Policy:

30707. New or expanded tanker terminals shall be designed and constructed to do all of the following:

- (a) Minimize the total volume of oil spilled in normal operations and accidents.
- (b) Minimize the risk of collision from movement of other vessels.

- (c) Have ready access to the most effective feasible oil spill containment and recovery equipment.
- (d) Have onshore deballasting facilities to receive any fouled ballast water from tankers where operationally or legally required.

Response:

The Long Beach Harbor Department's current policies toward tanker terminals conform to this section. Environmental review of any tanker terminal would include an analysis based on the above concerns, and the incorporation of appropriate mitigations. The proposed SOHIO project has been designed in this way. The lease to these facilities includes conditions to minimize oil spill risks and an oil spill contingency plan. The project itself is part of a large Harbor Department project to develop a centralized tanker terminal on Pier J which would enable more control over oil operations, minimize potential hazards, reduce traffic congestion and centralize tanker activities.

The Harbor Department is also developing a Risk Management Plan to facilitate control and management of specified potential hazards. The policy formulation portion of that plan is included in Appendix A.

Section 30708

Policy:

30708. All port related developments shall be located, designed and constructed so as to:

- (a) Minimize substantial adverse environmental impacts.
- (b) Minimize potential traffic conflicts between vessels.
- (c) Give highest priority to the use of existing land space within harbors for port purposes, including, but not limited to, navigational facilities, shipping industries, and necessary support and access facilities.
- (d) Provide for other beneficial uses consistent with the public trust, including but not limited to, recreation and wildlife habitat uses, to the extent feasible.
- (e) Encourage rail service to port areas and multi-company use of facilities.

Response:

The Master Plan attempts to minimize traffic by clustering related activities. It gives high priority to Port-related land uses, while providing public areas as designated along

Pier J. It also encourages improved rail service, such as in the Pier D project, and supports multi-company uses, such as the proposed Pier J tanker terminal. The Environmental Impact Report contained in this text addresses the impacts of the Master Plan. Specific Projects which are pursued subsequent to the certification of the Master Plan will be required to conform with both the Coastal Act and CEQA with respect to minimizing and mitigating significant adverse impacts.

FOCUSED ENVIRONMENTAL IMPACT REPORT

PROJECT DESCRIPTION

The "project" to which this Environmental Impact Report is addressed is the Master Plan, its policies, objectives and specific individual projects. The Master Plan's general philosophy, approach, goals, etc., and specific options and proposed projects for each planning district collectively determine the impact the Plan will have on the environment of the Port and its market areas. All of the above factors have been considered in assessing the "significant effects" of the Master Plan.

ENVIRONMENTAL SETTING

A detailed environmental setting has been prepared which fully describes all aspects of the existing environment in the Port of Long Beach; this is available as a separate document entitled Master Environmental Setting (MES) (Port of Long Beach, 1976b). The section which follows is a brief summary of the baseline environmental data contained therein.

Background

San Pedro Bay is the site of the busiest port complex in the western United States; the Port of Los Angeles and the Port of Long Beach are located in the San Pedro bay. The Los Angeles/Long Beach port region has been called the "Pacific Gateway to All America." The ports are served by three major transcontinental railroads -the Union Pacific, the Southern Pacific, and the Santa Fe. During the 1977 fiscal year, 35,000,000 tons of cargo were handled in the Port of Los Angeles; the Port of Long Beach set its own all-time record of 32.8 million tons of cargo handled.

The Port of Long Beach is the major deepwater port in America. The four-mile long main channel is 19.3 meters (60 feet) deep and is the deepest dredged fairway of any U.S. port. It can accommodate most present day tankers, container ships, and ore carriers. The Port has assets of over \$260 million. Internationally, the Port of Long Beach has trade relations with the major nations of the world and participates in five major trade regions. The Pacific Basin region is the leader in commerce activity. Other trade regions in order of their contributions include Latin America, the Middle East, and Canada. Increasing trade is developing with the USSR and initial agreements are under study to expand trade with the Peoples Republic of China. Foreign commerce accounts for the majority of the activity, but the Port of Long Beach also plays a major role in both coastal and intercoastal trade with other U.S. ports, including Alaska and Hawaii. The Port of Long Beach is ranked among the top 20 ports of the world in cargo value and is considered to be the sixth busiest container port in the world.

Physical Environment

Topography and Physiography

The Port of Long Beach lies within the south-central portion of the Los Angeles Basin adjacent to the mouth of the Los

an expanse of tidal lagoons and mud flats. Over the past 75 years, development has surrounded an offshore sandbar, once referred to as Rattlesnake Island, and now known as Terminal Island. The developed portions of the Port now lie 2.7 to 7.6 meters (9 to 25 feet) above the adjacent waters.

Soils

Below the organic bay mud deposits which cover the sea floor within the Port are medium dense to very dense sands and silty sands with localized lenses and layers of stiff sandy silts, clayey sands, and very dense gravelly sands. The developed portions of the Port are underlain, in the vast majority, by hydraulic fill derived from dredged channels and import sources and consist of loose to medium dense silty sand, and sand with sandy silt, silt, clayey silt, and silty clay. The hydraulic fills average about 12.2 meters (40 feet) thick.

Geology

The Los Angeles basin of coastal southern California, which includes the Port of Long Beach, is a northwest trending alluvial plain bounded on the north by the Santa Monica Mountains, and on the south and west by the sea. The basin is underlain by a major structural depression which has been the site of deposition and subsidence since Miocene time, and is notable for its relative complexity and for its prolific oil production. The vast amount of data accumulated in the exploration and production of the Wilmington, Long Beach and East Wilmington (Long Beach Unit) Oil Fields have provided a well documented description of the local geology. In general, the subsurface profile consists of 304.8 to 457.2 meters (1,000 to 1,500 feet) of relatively unconsolidated Quaternary sediments overlying 1,534 to 2,743.2 meters (5,000 to 9,000 feet) of Tertiary sedimentary rock which in turn overlies Mesozoic metamorphic "basement" rocks.

The closest major fault is the Newport-Inglewood Structural Zone, a nearly linear alignment of folds and faults extending from Newport Beach on the southeast to the base of the Santa Monica Mountains on the northwest, the trace of which passes some 6.4 kilometers (4 miles) northeast of the Port of Long Beach. The San Andreas Fault, the major fault in California, is located approximately 80.5 kilometers (50 miles) northeast of the Port at its closest proximity. Numerous pre-quaternary faults have been located beneath the Port itself through interpolation of oil well data; however, none of these are considered active faults.

Seismicity

Southern California is recognized as one of the most seismically active areas in the United States. Although ground motions

can be generated from many causes, most of the destructive earthquakes in California result from sudden movement of large blocks of the earth's crust along faults. The southern California region has been subjected to at least 52 major earthquakes (Richter magnitude 6 or greater) during the period of 1769-1977. Within southern California, one major regional concentration of earthquake activity is the Los Angeles-Long Beach area, with the Newport-Inglewood fault zone the center of seismic activity for the region.

The magnitude 6.3 Long Beach earthquake of March 10, 1933 was well documented. The records provide valuable information regarding the seismic phenomena experienced. These data may provide an indication of phenomena expected during a similar seismic event in the area. Observations indicate that conspicuous damage was greatest in areas underlain by man-made fill or loose alluvium, particularly when heavily charged with water. Lower intensities were observed in more stable ground, such as the San Pedro Hills and around Signal Hill (Wood 1934, Binder 1952, and Barrows 1974). See Master Environmental Setting for further detail.

Geologic Hazards

Possible geologic hazards to the Port of Long Beach include earthquake induced ground motion, liquefaction, and tsunamis. The ground motion resulting from a particular earthquake at any given location depends upon several factors: magnitude (of earthquake), distance of the focus below the surface, distance of the source to the site, and geologic structure at the site. Empirical relations between Richter Magnitude and distance from the zone of energy release to maximum acceleration have been established. The most probable earthquake sources producing significant ground motions at the Port of Long Beach would be generated by the San Andreas and Newport-Inglewood faults.

Liquefaction is a phenomenon in which relatively loose soil strata of fine sands below the water table experience partial or total loss of shear strength as a result of increased pore water pressure in the soil media when shaken during an earthquake. Liquefaction is considered a possibility in portions of the Port of Long Beach if certain major earthquake ground motions were to occur. Figure II-42 in the MES shows potential liquefaction areas in Long Beach.

Tsunamis are long water waves generated by submarine soil displacement associated with earthquakes, and pose a threat to all low-lying coastal areas. Because of the location of the Port in relation to the Palos Verdes Peninsula, Santa Catalina and San Clemente Islands, some protection is afforded against major tsunamis, however, distant earthquakes from the Aleutians and other portions of the Circum-Pacific Belt will continue to be a source of tsunamis striking the southern California coast. Figure II-4-5 in the MES shows the areas in Long Beach which are considered subject to inundation and potential damage resulting from tsunami waves. Currents generated as a result of tsunami waves could cause significant damage to boats and harbor facilities in the Inner Harbor and Cerritos Channel areas.

Meteorology and Air Quality

The Port of Long Beach generally enjoys a pleasant Mediterranean-type climate typified by warm, dry summers and mild winters. Almost all of the light rainfall (25.0 cm/yr. [9.84 in/yr.]) occurs between November and April. The moderating effect of the ocean restrains the seasonal temperature variations. The average minimum in January, the coldest month, is 7°C (45°F); in August, typically the warmest month, the average maximum is 27°C (80°F).

The atmospheric conditions in the Port of Long Beach are generally clear and calm. During the daylight hours it is sunny about 75% of the time. The average annual wind speed is only about 9.8 kilometers/hour (6.1 miles/hour). A breeze from the sea usually comes in during the day, and at night a land breeze arises.

Temperature inversions occur about 90% of the mornings, trapping air pollutants beneath the inversion layer. Frequent inversions and low wind speeds cause poor dispersion of air pollutants. Abundant sunshine intensifies the problem by fostering a photochemical reaction in which oxides of nitrogen and reactive hydrocarbons produce ozone, the primary harmful constituent of "smog".

Air quality in the Long Beach area is better than in the inland areas in the Los Angeles Basin, though emissions within the Port contribute to the regional air quality problems. Table III-1 shows the number of days air quality standards are not met locally and regionally.

TABLE III-1
NUMBER OF DAYS CALIFORNIA AIR QUALITY STANDARDS
EQUALLED OR EXCEEDED IN LONG BEACH
OR IN LOS ANGELES BASIN 1975

Air Contaminant	State Air Quality Standard (and Averaging Time)	Number of Days Specified Contaminant Concentrations Equalled or Exceeded	
		Long Beach ^a	Los Angeles Basin ^b
Oxidant (Ozone) (O ₃)	0.10 ppm (1 hour)	4	201
Carbon Monoxide (CO)	10.00 ppm (12 hours)	34	123
	40.00 ppm (1 hour)	0	3
Nitrogen Dioxide (NO ₂)	0.25 ppm (1 hour)	26	78
Sulfur Dioxide (SO ₂)	0.04 ppm (24 hours)	22	62
	0.50 ppm (1 hour)	0	0
Particulate Matter	100.00 g/m ³ (24 hours)	No Data	84% ^c

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- (a) Location of monitoring station shown on Figure II-6-6 in the Master Environmental Setting.
 - (b) The standard is considered not met in the L.A. basin on days in which the standard is equalled or exceeded at any one station within the basin.
 - (c) Figure denotes percentage of days measured on which standard was exceeded.
 - (d) Visibility figures are based on observations taken at three airports in the basin (including Long Beach airport), and at the downtown Los Angeles monitoring station.

Source: Metropolitan Zone, Southern California Air Pollution Control District, Air Quality & Meteorology, 1975 Annual Report.

Noise

Noise in the Port area originates from three major sources: marine transportation, port facilities, and ground transportation. Except for single event noise occurrences such as ship arrivals, construction, low flying aircraft, trains, and trucks, noise levels in and around the Port area are generally within today's accepted limits. In the Port area, ambient noise levels are mostly within the 55 to 62 dBA level in the daytime and the 51 to 56 dBA level during the nighttime. In the nearest residential areas, daytime noise levels are 57 to 62 dBA and nighttime levels 49 to 53 dBA. For comparison, normal conversation at 12 feet equals 50 dBA, urban residential noise levels are about 53 dBA, and freeway traffic at 100 feet is 80 dBA.

Hydrology/Oceanography

Tides

In Long Beach harbor there normally exist two high and two low tides in a 25-hour period. However, on certain days of each month diurnal tides are observed. Based on U.S. Coast and Geodetic Survey data, the highest tide is 2.3 meters (7.54 feet) above mean lower low water (MLLW). The lowest tide is 0.8 meters (2.56 feet) below MLLW. The mean tidal range between high water and low water is 1.5 meters (3.76 feet), while the diurnal range is about 1.7 meters (5.43 feet).

Wave Environment

For waves outside the Long Beach Harbor region, there are a number of deep water wave data available. Data from Marine Advisors Station B at the location 33.5° N and 118° W, east of Santa Catalina Island, show that the predominant wave direction is westerly for Northern Hemisphere swell, with the maximum significant height of approximately 1.5 meters (5 feet). For Southern Hemisphere swell, the maximum significant height is about 0.6-0.9 meters (2-3 feet). Data obtained from measurements done outside and inside San Pedro Breakwater (Lee and Walther, 1974) show that the predominant wave period is about 16-17 seconds. The wave amplitude inside the breakwater at this period is about 30 percent of that outside the breakwater. Historical events associated with surge phenomena in San Pedro Bay have been well documented by Wilson, et al. (1968). The surging period ranging from 1 minute to 1.33 hours was found by many investigations. Also available are detailed hydraulic model and computer simulation studies of tidal circulation and oscillations in Long Beach Harbor performed by the U.S. Army Corps of Engineers Waterways Experiment Station (WES) in Vicksburg, Mississippi.

Currents

The main current-producing forces appear to be tide and wind, with the resulting current modified by the boundary of the basin. Current speeds are generally 0.1 to 0.2 knots with the larger magnitude at the breakwater openings. A large gyre, which appears to be primarily wind-driven, occurs in the outer harbor. It is generally clockwise on the surface but is sometimes counterclockwise. Measurements at the 6-meter depth indicate a counterclockwise flow which suggests a shear effect.

Physical Water Quality

San Pedro Bay consists of the shallower, more protected waters off the south coast bordering the Southern California Bight. The estuarine area originally was formed by the Los Angeles and San Gabriel Rivers, with the Palos Verdes Hills to the west. The Los Angeles River flowed from east to west through the present Cerritos Channel north of Rattlesnake Island, with principal outlets at the Back (main) Channel in Long Beach and the main channel in San Pedro. The river was diverted into a flood control channel emptying into Long Beach Harbor east of Pier J, in order to control debris and sediment in this harbor. The San Gabriel River, at present, empties into Alamitos Bay and Anaheim Bay. In earlier years, this river at times flowed through the Rio Hondo and Los Angeles River beds or followed its present course. Both rivers are now channelized -- and have been for some years.

The harbor is considered an estuarine area rather than a true estuary because the limited annual rainfall of 6-14 inches occurs only during a few months in winter, and thus there is no significant continuing freshwater influx. Flow in the river bed is regulated by the flood control dams upstream. Considerable debris is carried down the river during the first major rain-storm of the year. Winter rains may drop as much as nine inches in one storm on the Los Angeles Basin, causing a fresh water lens to form on the harbor surface.

The harbor waters and the nature of the biota are strongly influenced by the water regime in the nearshore coastal waters and the southbound California current (Soule, 1974). The near-shore circulation patterns consist of a series of gyres or eddies which spin off from the southward flowing current, which usually passes outside the Channel Islands (Jones, 1971). In winter, a northward flowing Davidson countercurrent carries warm waters from the tropics close inshore. This flow varies in duration and in the distance it extends north along the California coast, usually surfacing near Point Conception. For these reasons, the harbor receives waters from tidal exchange and currents which may carry eggs, larvae, plankton, and fishes from the cooler northern waters at certain times and from the warmer southern waters at other times. An almost continual introduction of organisms takes place, and those that find suitable food, temperature, and substrate can colonize.

The following discussion of specific characteristics of the harbor is based on published and unpublished data from investigations that, with few exceptions, were carried out during the period 1971 to 1975. These include as major studies the Harbors Environmental Projects Report to the U.S. Army Corps of Engineers (Allan Hancock Foundation, 1975), environmental investigations and analyses carried out in the harbor during 1973-75, and Marine Studies of San Pedro Bay, California, an 11-volume series published by the Allan Hancock Foundation and Sea Grant Program, University of Southern California. Studies within Long Beach Harbor include: Environmental Quality Analysts/Marine Biological Consultants (EQA/MBC, 1975), Marine Monitoring Studies of the Long Beach Generating Station for the Southern California Edison Company, and the report to the Port of Long Beach by MBC (1975). Other pertinent references are listed in the Master Environmental Setting. Further, in order to maintain a Master Environmental Setting with current, viable data, the Port and the City of Long Beach are engaged in ongoing water quality monitoring programs.

Temperature

Water temperature regimes differ considerably from year to year in southern California. Warm water intrusion from the south and variations in wind, clouds, fog, rainfall and air temperature affect local water temperatures. The high temperatures in some years were lower than the lows of other years. Surface temperatures

as low as 9.5°C and bottom temperatures of 8.2°C have been recorded at the sea buoy outside Angels Gate. Cold bottom temperatures of 9°C have intruded into Cerritos Channel. These minimum temperatures have been recorded in December and April. During the summer months surface temperatures have reached 21.2°C and bottom temperatures 15°C. The waters in the shallow slips in the inner harbor have reached a maximum of 26°C. Thermal inversions, with cooler water overlying warmer water, have been noted in spring and fall, possibly due to rapid changes in surface water temperature.

Dissolved Oxygen

Dissolved oxygen (DO) levels are used by regulatory agencies to measure water quality; 5 parts per million (ppm) has been considered adequate. Surface DO at the sea buoy outside Angels Gate has been as low as 3 ppm; just inside the breakwater, surface DO has reached 1.0 ppm while bottom DO was 3.4 ppm.

Areas with low circulation and excess nutrients, such as Long Beach Slip 2, show low DO levels more frequently than elsewhere. Oxygen may be super-saturated during times of intense photosynthesis carried on by phytoplankton "blooms". DO readings may be as high as 13-17 ppm. However, DO levels plummet rapidly when the bloom "dies", due perhaps to released metabolites or microbial degradation. In general, DO levels within the harbor are consistently above 6 ppm.

Salinity

Extreme salinity values found in the harbor range from 23.15 to 37.83 parts per thousand (ppt), with highs near the mouth of the San Gabriel River and the Alamitos Power Plant. Relatively high salinity water also occurs within the large circulation gyre between Terminal Island and the middle breakwater. Salinities mostly ranged between 30.00 and 34.21 ppt. During heavy rainfall, freshwater may persist for some time on the surface.

A significant drop in annual mean salinity for the harbor was noted between the years 1973 and 1974. This appears to be related to the cessation of discharge of oil field brines into the harbor as a result of an order from the Regional Water Quality Control Board.

Hydrogen Ion Concentration (pH)

The pH values within the Long Beach Harbor generally range between 6.5 and 8.6. High pH often coincides with highest oxygen peaks, but no direct correlation is apparent. Usually, the pH levels decrease from surface to bottom waters.

Light Transmittance

Light transmittance is inversely related to turbidity, the amount of suspended matter (living or dead) in the water column. Waters of the inner harbor, the sewage and fish cannery waste outfall areas, and the San Gabriel River mouth can be turbid. Waters outside the harbor breakwater are the clearest.

Nutrient Chemistry

The quality of the waters of the Port of Long Beach is affected by the distribution and variation of inorganic nutrient elements in those waters and in adjacent areas of the harbor and San Pedro Bay. This distribution and variation in levels is regulated by physical and biological factors. Nutrient levels are lowered by photosynthetic uptake and increased by the decay of organic material. Tidal currents, land drainage, and variations in the flushing rate of the harbor affect nutrient levels. Fish cannery and sewage wastes are important sources of nutrients. The production of organic matter by green plants is often limited by the availability of two nutrients in marine waters: nitrogen (as ammonia, nitrite, or nitrate), and phosphorus (as orthophosphate). Nutrients are not generally limiting factors in the harbor. However, there is a consistent pattern of relatively high nutrient concentrations in the inner harbor as compared to the outer harbor. Waters of the Port of Los Angeles have shown higher nutrient levels than those of the Port of Long Beach, and nutrient concentrations within the harbor are higher than those found offshore.

During the MES studies, a broad group of nutrients was characterized by low nutrient and high oxygen levels in the spring. Nutrient concentrations in surface waters were greater than concentrations in bottom waters during fall and winter. The reverse trend occurred in spring and summer when intense photosynthesis (phytoplankton blooms) depleted surface nutrients.

Sediment Grain Size

Sediment characteristics are affected by a number of factors including bottom contour, current strength, biological activity, dredging and landfill operations, deposition of organic matter, stormwater runoff, and erosion.

Outside the breakwater the bottom sediments sampled consisted of approximately 80 percent sand and 20 percent silt.

Outer harbor stations had a silt-clay composition of about 25 percent sand, with no seasonal variability.

Inner harbor sediments show greater variability with regard to both sediment size and seasonality. The Southeast Basin has a

sand bottom containing about 65 percent sand. Back Channel sediments vary from silty-sand to sandy-clay silt depending on location. Sandy-clay silts appear at the southern part of the channel with some seasonal variations. Channels Two and Three have fine sediments of silty-clay. Cerritos Channel sediments range from a clay-silt to silty-sand. Discrepancies observed (AHF, 1975; EQA/MBC, 1975) probably are due to sampling from different microenvironments.

Biotic Environment

For close to a century, the harbor area served as the receiving waters for human and industrial wastes and fish cannery effluents (California Regional Water Quality Control Board, 1969). Beginning in the 1920's, rapidly increasing loads of industrial wastes, refuse from vessels, and oil refinery wastes flowed into the harbor. Complaints from workers about sulfide fumes from anoxic waters and mud flats were recorded in the 1920's, and as nearby residential areas increased, demands were made to drain mud flats and increase flushing. In the 1950's much of the inner harbor and channels were devoid of visible life (macrofauna) in the water column or on the bottom (Reish, 1959).

Since the passage of the National Environmental Policy Act (1969) and California Environmental Quality Act (1970), efforts have been accelerated toward improving water quality. For example, discharge of oil wastes into the inner harbor was controlled in 1970, and improvements could be observed as early as 1971.

Water quality within the harbor has improved as clean-up efforts continue, and a rich ecosystem has developed, utilizing nutrients contained in effluents or carried in by run-off.

Because the harbor waters exchange with coastal waters, water quality improves when pollutants are controlled. However, limited circulation and dead-end slip configurations make the water susceptible to short-term stresses such as those caused by oil spills or phytoplankton blooms.

The sediments are not cleaned as easily or quickly as the waters. They retain, in complex chemical forms, the accumulation of years of organic and metallic wastes. Because the waters are relatively shallow, sediments are easily stirred by winds, wave, and ship propellers. Toxic substances and high oxygen demand have eliminated the infauna in some locations, but the number of benthic (bottom) species has increased greatly in recent years, indicating improvement in sediment quality.

Studies carried out by Harbors Environmental Projects (AHF, 1975) plus additional studies of the Port of Long Beach (EQA/MBC, 1975; MBC, 1975) that sampled the fauna of the water column and the bottom were used to evaluate the environmental quality of the

entire harbor since 1973. The Master Environmental Setting (MES) contains a detailed account; key results are summarized below.

Phytoplankton

Phytoplankton production, or productivity, is the rate at which free-floating single-celled green plants (phytoplankton) convert inorganic carbon to organic carbon via photosynthesis. Production is, in part, a result of the standing crop of green plant material (i.e., chlorophyll a values) and its photosynthesizing efficiency (i.e., the assimilation ratio). In marine waters, phytoplankton production is generally regulated by the availability of nutrients and adequate sunlight. In harbors and other areas where high nutrient levels occur because of effluents and runoff, productivity may be excessive in relation to the animals available to utilize the crop. This condition can be called eutrophication. In the Port of Long Beach, areas with the highest productivity were in Channel Two of the Long Beach Harbor and near the mouth of the Los Angeles River. Lower values were found in the Outer Harbor and the lowest were outside the harbor. Heavy inputs of nutrients from the Los Angeles River and poor circulation in Channel Two contribute to the high productivity values. While the density of phytoplankters was generally higher in the inner harbor, species diversity was higher in the outer harbor.

Productivity and standing crop of phytoplankton reached minimum levels in January and February of 1973 and 1974, followed by moderate spring peaks from March through May. Another period of peak productivity usually occurred in the harbor during summer and fall.

The harbor is subject to sporadic, sometimes localized "blooms" of phytoplankton resulting in water discoloration. Blooms may be due to reduced circulation, where small masses of water are not dispersed. With excess nutrients present, phytoplankton continue to reproduce in the restricted area. When the bloom dies, anoxic conditions may result. Dinoflagellates have been implicated in so-called "red tides", when a reddish to brownish color is imparted to the water. Localized "green tides" of euglenoid organisms, and "white tides" presumably of bacterial origin, also have occurred.

The patterns of occurrence in productivity and chlorophyll within the harbor coincide in time with variations outside the harbor, but show a far greater magnitude and variability. The determinants of these values within the harbor are probably related to restricted flushing of the entire bay, the circulation within the bay, and effluent discharge.

Zooplankton

Zooplankton consists of very small animals that are temporarily or permanently suspended in the water column and are subject to transport by the water mass. In the Los Angeles-Long Beach Harbors, zooplankton is composed primarily of crustaceans called copepods and cladocerans, larvaceans and chaetognaths, plus the eggs, larvae and juveniles of other invertebrates and fishes.

Although total zooplankton concentrations between the inner and outer harbors are similar, the kinds of individuals show considerable disparity. For example, three species of certain fish eggs and fish larvae and bryozoan cyphonautes larvae which occur in quantity in the outer harbor, are virtually absent from the inner Los Angeles Harbor. Thus, spatial variability may reflect differences in environmental conditions of the inner and outer harbors, such as lower mean pH and dissolved oxygen, higher mean temperatures and lower mean salinity. Areas of eutrophication, chemical and thermal pollution, and fresh water influx apparently contribute to such spatial variability. Examples include the following:

1. Low concentrations of zooplankton were associated with areas of freshwater influx including the Los Angeles River, Dominguez Channel, and the San Gabriel River.
2. Greatly reduced zooplankton concentrations were found in the Los Angeles inner harbor.
3. Very high zooplankton densities occurred in the inner Long Beach Harbor, apparently associated with the high phytoplankton productivity found there.

Surface abundance of copepods was generally highest in the winter and lowest in the summer, with some intermittent peaks in the spring. Sampling for zooplankton abundance in deeper waters from the inner and outer Long Beach Harbor showed the opposite trends, with an abundance of copepods in the summer and a sparsity in winter.

Water Column Fauna

Settling racks, prepared from wooden microscope slide boxes suspended three meters below the surface, sample the small elements of the water column community, act as a substrate for larger forms ready to undergo settlement, and also serve as a trap for eggs, larvae, or juveniles which cannot escape from the screened racks after minimal growth. In the AHF studies, settling rack fauna was dominated by amphipods, annelids, a tunicate, a tanaid, and a mollusc. The summer periods represented peak periods of settlement activity, while the winter periods represented minimal periods of settlement.

While a few species are ubiquitous or are common to many stations, the species composition varied considerably from station to station throughout the harbor. The number of annelid species was highest in the inner Los Angeles Harbor and lowest at stations outside both ports. There was a slight reduction of amphipod species from the outer harbor stations in both ports to the main channel stations, and a further reduction from the main channel stations to Inner Harbor slip stations. The mean number of molluscan species in the Outer Harbor sites was above the mean number for all locations, while channel and inner slip means for molluscs were lower, according to settling rack sampling data.

Computer cross correlations of species and individual abundances with biotic parameters such as temperature, salinity, dissolved oxygen, biological oxygen demand, turbidity, and wet weight of the six most dominant species showed the highest correlations with temperature. Details of analytical methods and correlations can be found in the Master Environmental Setting. Species groups can also be defined in terms of an environmental stress gradient. The Inner Harbor and channel site groups together were considered as a high stress environment, with the most significant variables being higher temperature and lower dissolved oxygen. A greater salinity range also contributed to the high stress environment during the winter months. The groups in the Outer Harbor and outside the breakwater were not subjected to as high temperatures and dissolved oxygen but salinities were higher, constituting a low stress environment, determined by the computer correlations.

Benthic Fauna

Bottom sediments in the harbor sampled by a boxcore device or "grab" were dominated by polychaete worms, molluscs, crustaceans, nematodes, and ostracods. These organisms are important ecologically because they serve as food for demersal fishes, crabs, and other benthic organisms, and are essential in the decomposition of organic and nutrient laden sediments. A typical "core" sample of bottom substrate (1/16 m²) may yield between 1 and 60 species and as many as 5,000 individuals.

The Outer Harbor supports a rich and diverse fauna containing large numbers of annelid worm species, generally associated with relatively "healthy" unpolluted sediments. Sediments in the Inner Harbor and those within the Navy complex support a fauna low in species number, yet high in numbers of individuals, a situation common for environments under stress. The most common Inner Harbor annelids were two species well known as indicators of polluted sediments: Capitella capitata and Schistomerings longicornis (Reish, 1959). Channel stations contained large numbers of "transitional" organisms. Probably the greatest single factor

responsible for the observed qualitative divisions in the harbor is the lack of circulation in the Inner Harbor causing the deposition of finer sediments and concentrations of pollutants in these regions.

Fish Fauna

The Outer Harbor is rich in fish populations. This is due to a number of factors: the protected nature of the waters, the abundance of food, high productivity of the surface waters, nutrient enrichment from wastes, and diversity of bottom types (i.e., mud, sand, rock and pier pilings). Otter trawl data combined with gill net surveys, beach seines, diver surveys, and hook and line records, show that at least 132 species of fish inhabit or frequent the Outer Harbor waters. The numbers of both species and individuals taken by trawls generally equals or exceeds samples from Santa Monica Bay, Palos Verdes, and outer San Pedro Bay. One investigator has concluded that the harbor has "the richest soft bottom ichthyofauna..." in California (Stephens, et al, 1974).

Samples taken by otter trawls in the Outer Harbor were dominated by white croaker, northern anchovy, bay goby, tongue sole, and queenfish, followed by several species of flatfish, surfperch, midshipman, and rockfish. Samples from the Cerritos Channel contained a greater number of bay gobies than samples from the Outer Harbor. Rockfish were closely associated with the break-water; flatfish densities were highest between the middle break-water and Terminal Island, and in an area east of Pier J.

A general decline in fish populations in the harbor and throughout southern California is apparent when trawl data from 1974 and 1975 are compared with data from 1972-1973.

Some fishes are not effectively sampled by otter trawls and must be sampled by nets or hook and line. Data on fish larval occurrence showed that blennies, which inhabit rock crevices, were very abundant. Pelagic species such as anchovy are probably more abundant than indicated by otter trawl data. A successful live-bait fishery takes advantage of this abundance within the harbor. The harbor provides ideal conditions for capturing, transporting, transferring, and holding bait for sale to sport fishermen. Anchovies found in the harbor are primarily of the 0-1 year age class; they migrate to deeper, cooler waters after that period where they are taken by commercial fisheries. Harbor anchovies are major consumers of zooplankton and furnish an important forage item in the diet of a variety of marine animals.

Algal Flora

Intertidal and subtidal algae provide an important source of food for several fishes and invertebrates and offer substrate and

concealment for many others. Surveys of algal flora showed that stations along the oceanside of the breakwater have the highest number of algal species. At least 80 species have been identified from both sides of the breakwater. Stations on Pier J and around the Navy complex are relatively impoverished. Transects for algae within the Inner Harbor have not been made.

Microbial Populations

Studies on the microbiology of the harbor have been confined to monitoring for total coliforms, fecal coliforms, fecal streptococcus and standard plate counts. High concentrations in the harbors have been repeatedly found around the sewage and cannery waste outfalls off Terminal Island. Sporadic occurrences of relatively high counts of coliform bacteria in the Long Beach Harbor have been associated with stormwater runoff, particularly around the mouth of the Los Angeles River. The release of sewage wastes from ships may account for the coliform loads found infrequently at some inner and outer stations.

Birds

Weekly bird surveys were made during 1973 and 1974 by Harbor Environmental Projects (AHF, 1975). Nearly all of the marine birds in the harbor were spring and fall transients in migration, or concentrations of non-breeding birds. Only the Killdeer and Least Tern have the potential to breed in the area. While the number of migratory water birds in the harbor does not approach the concentrations that assemble at such places as upper Newport Bay, Morro Bay, and south San Francisco Bay, the Outer Harbor is an important resting and feeding area.

The bird fauna is dominated by several species of Gull, Surf Scoter, Brown Pelican, Black-legged Kittiwake, Forster's Tern, Sanderling, Willet, Black-bellied Plover, and Doublecrested Cormorant.

Principal areas of feeding in the harbor included the outer breakwater and the area off Terminal Island associated with the sewage and cannery outfalls. Areas where birds were most often seen resting included the dead-end basins in the Inner and Outer Harbors. Birds were most often seen flying over the main channel of the inner Los Angeles Harbor. The endangered California Brown Pelican ranks as one of the ten most abundant birds in the harbor. The endangered Least Tern has been observed feeding in the harbor, but there are no known nesting sties in the Long Beach Harbor District.

Marine Mammals

California sea lions, harbor seals, dolphins, and migrating gray

whales have been observed in the harbor. Although sea lions, seals and dolphins may feed and/or rest in the harbor, these transients are not dependent upon the harbor for their sustenance.

Terrestrial Biota

The terrestrial areas are in early stages of invasion and establishment by plants and animals. Soils are coarse and water is not readily retained for use by plants. Nutrient levels are low, and the accumulation of organic material is minimal. Plant communities have not developed. Plant cover is low, and in general productivity is very low. The number of animal species is low and populations poorly developed.

The most frequently occurring plants include "weedy" species, such as Bassia, bermuda grass, camphor weed, wild barley, cheeseweed, Russian thistle, common sow thistle, and Stephanomeria. Little vegetation cover is available for terrestrial animals. Terrestrial animals are dominated by domestic cats, which discourage ground nesting species such as gophers, ground squirrels, and rabbits.

Socio-Cultural Environment

Land Use

Various land uses in the Harbor District were designated in the Port of Long Beach General Plan, 1975. See Figure 7, page 64 for the various planning districts within the Port used in the Master Plan. Included in these districts are approximately 478 hectares (1,180 acres) used for primary port facilities which include shiploading, transit sheds, stevedoring operations, and industrial operations primarily engaged in the shipment of goods and raw materials. Primary port facilities occupy the majority of land in the Harbor District. The next largest land use category is oil production, involving 194 hectares (480 acres) which are used for storage and processing plants, drilling sites, and injection wells. Of the 194 hectares (480 acres), 63 hectares (155 acres) are public property and 132 hectares (325 acres) are private property.

The basic pattern of present land use will continue with some modifications and exceptions. The main planning goals of the Port are to provide a program of ordered growth and to maintain options and to retain the capability of meeting various and changing needs.

New landfill south of Pier J is planned to aid in the expansion of the Port and will be used for primary port operations, public recreation, and fisheries.

Population Patterns

The City of Long Beach was characterized by rapid population growth through the post World War II years. Since that period, however, the growth rate has slowed as the areas have become urbanized and developable land declined. Current estimates indicate a decline in population since 1970 (348,000 vs. 361,000). The Southern California Association of Governments projects that the Long Beach population will reach 351,130 by 1980 and 362,097 by the year 2000. Additionally, patterns indicate that the City's age structure is strongly skewed toward the "over 60" age group (18.9% of the City's population), and that there has been a recent increase in the minority population. The City is currently 81% white and 19% minority. In terms of the future, forecasts suggest that the City's population will grow at a slow pace through the year 2000, that the age structure will become slightly more balanced, and that the percentage of minority residents will increase (data provided by the City of Long Beach Planning Department).

Amenities

The Long Beach area possesses a number of amenities. Of these, cultural facilities include those which have historic and social value (e.g., Rancho Los Cerritos, Rancho Los Alamitos, Long Beach Museum of Art, Community Playhouse, etc.), while shopping facilities consist of numerous minor retail stores and eleven major centers. Entertainment and recreational facilities are also numerous and include a variety of facilities that utilize assets of the Bay. These include the Long Beach Marina, the Queen Mary Complex, the new Convention Center/ Theater, and others. In addition to these facilities, there are numerous historical and archaeological sites in the area. While most are located inland, some are located in or adjacent to the Bay.

Housing facilities in Long Beach can be summarized as follows in Table III-2

Table III-2

PERCENTAGE OF AVAILABLE DWELLING UNITS IN LONG BEACH

Year	% Single-Family Units	% 2-4 Units	% 5 or More Units
1960	58.5	15.9	25.6
1970	51.2	15.9	32.9
1975	48.1	15.2	36.7

Housing densities vary between 41 dwelling units (DU) per acre in the urban core to 7 DU in the newer, outlying areas. The City Planning Department has estimated that the number of housing units

will grow to 154,615 by 1980, and to 169,651 by 1990. SCAG has alternately projected a lower rate of increase: 151,976 by 1980, to 162,680 by 1990, and to 166,275 by 2000.

In terms of aesthetics, the Port of Long Beach is considered to be of low scenic quality since it is highly industrialized, having many berths with storage and/or processing facilities. Further, the Port has the potential to decrease the scenic quality of the surrounding visual environment.

Historically and archaeologically significant sites within the City include various City-recognized historical sites, four known archaeological sites, and the two nationally-recognized ranch houses mentioned above.

Public and Private Service Systems

The variety of public and private service systems serving the Port of Long Beach as well as the City of Long Beach is extensive. The various services can be grouped as public health and safety services, utility supplies, and human services.

Services included within the public health and safety sub-category and allocated to the Port consist of the following: fire protection (three Long Beach Fire Department fire stations within the Harbor District; one land and two fireboat stations), police protection (26-man Harbor Security force, with assistance from one patrol unit of the Long Beach Police Department); building inspection; solid waste management; storm drain and flood control; public health services; health care facilities (13 hospitals in the City, plus 8 other area facilities for a total of 3,845 general/intensive care beds with a 66% occupancy rate); emergency medical care; and permit and regulatory activities. These services are provided primarily by City agencies, Port personnel, and private agencies.

Human services include local schools, social welfare agencies, eleven branch libraries, and 43 City parks and numerous recreational areas. While a small number of educational facilities are private, other services are public and are run by the City of Long Beach and by the County of Los Angeles. The Long Beach Unified School District adequately serves a student enrollment of 57,000, a significant decline from 1964 (74,564 pupils). Enrollments are expected to decline through 1983 (50,975), climb slightly in 1990 (by an additional 3,000), and again by the year 2000 (an additional 2,500). Long Beach City College and California State University, Long Beach provide higher education. In addition, private educational facilities include thirty religious schools, fifteen extended day schools, and eighteen other facilities which function as pre-school and military academies.

Utility service provided to the Port consists of electricity, freshwater, natural gas, and telephone service. While electrical and telephone services are allocated by private companies,

natural gas and freshwater are supplied to the Harbor Department by utilities owned by the City of Long Beach. The existing freshwater supply system in the Port is adequate to meet present needs although improvements and expansions of the system will be needed to meet future needs. While demands on a City-wide level for natural gas have been met by the Long Beach Gas Department, future estimates for supply and demand indicate a shortage in supply that will be somewhat ameliorated with the utilization of new sources. Telephone service provided by the General Telephone Company of California is presently adequate, and any expansion of service will coincide with future Port expansion. Electrical service which is provided to the Port is adequate to meet existing needs. With Port expansion, it is anticipated that demands will also be met, even though service extension will be required as will the development of new substations.

Traffic and Transportation

Regional access to the Port of Long Beach is provided by three freeways: the Harbor, the Terminal Island, and the Long Beach Freeway via Harbor Scenic Drive. The primary surface street access is via Ocean Boulevard-Seaside Avenue, an east-west arterial across the combined Los Angeles-Long Beach Port area. Secondary access is provided by way of Henry Ford Avenue, Pico Avenue, and the Queens Way Bridge. All three freeways are operating at relatively high levels of service at the cordon boundaries of the study area. Because of the carrying capacities of these facilities, the north-south surface street system is operating at a very high level of service. However, many portions of the east-west street system are operating at or in excess of design capacity both east and west of the study area. It is estimated that the trucks comprise 7.5 percent of the total traffic flow during peak commuter periods. Public transportation in the study area is provided by the Long Beach Transportation Company.

The East and Southeast Basins of the Port, which handle most of the dry bulk and general cargo activity, have excellent trackage to all piers. The northeast portion of the Port has extensive rail service facilities, and the Los Angeles and Long Beach Port developments on Terminal Island are served by a railroad line crossing the Cerritos Channel.

Current vessel traffic in and out of the Port of Long Beach is approximately 6700 vessel movements per year. This total includes approximately 500 movements of vessels to and from anchorage in the Long Beach Outer Harbor. It also includes approximately 650 movements of U.S. Navy vessels in and out of the Port. The balance, about 5550 movements, are commercial vessels. It is estimated that peak daily traffic is 30 vessel movements. The Port of Long Beach has one of the lowest vessel casualty rates of any United States harbor.

Economic Environment

Introduction and History

The Port of Long Beach is one of the two major contiguous harbors that occupy San Pedro Bay. The initial development of what is now the Inner Harbor of the Port was begun early in the twentieth century. The Harbor Department and its governing Board of Harbor Commissioners were created in 1931 by the City of Long Beach and given exclusive jurisdiction over the Long Beach Harbor District, an 11.25-square mile area within the city limits of Long Beach. The Port operates in the context of three levels of governmental jurisdiction and two distinct market areas. The Harbor Department of the City of Long Beach governs the Harbor District which lies totally within the City of Long Beach. Long Beach, in turn, is within Los Angeles County. The market area for the Port consists of Los Angeles and Orange Counties, together with portions of Ventura, San Bernardino, and Riverside counties; and the expanded market area including all of southern California and portions of seven adjacent western states.

The primary focus in this analysis is on the City of Long Beach and the County of Los Angeles, with some discussion of the two-county area of Los Angeles and Orange Counties.

Industry and Employment

The Port and City of Long Beach are an integral part of the Los Angeles County labor market. Los Angeles County as a whole has a labor force of approximately 3.3 million, of whom slightly under 3 million are currently employed, with an overall unemployment rate of 9%. The labor force and employment growth in Los Angeles have been generally modest over the last decade with the labor force increasing by less than 250,000 since 1966. After peaking at approximately 3.2 million in 1972, employment is now essentially at the same level it was 10 years ago. Major employment sectors include manufacturing (25%), wholesale and retail trade (23%), services (21%), and government (16%).

Although Long Beach is the sixth largest city in California, no regular statistics are maintained either for it or the Long Beach Regional Statistical Area (RSA). Certain periodic estimates of Long Beach Employment have been made. For the Long Beach RSA, employment was estimated at approximately 194,000 in 1970 or about 6% of the County total. Of this 194,000, an independent estimate based on census material suggests that approximately 159,000 or some 82% were employed in the City of Long Beach itself. More recent data show the Long Beach labor force to be approximately 163,000. Additional data is contained in the Master Environmental Setting.

Major industries in the City of Long Beach include manufacturing, specifically the McDonnell-Dougals aircraft facility, with over 16,000 employees and a very substantial government sector. No official statistics are kept for employment in the Port of Long Beach. Tentative estimates can, however, be generated from detailed commuting data prepared by LARTS (Los Angeles Regional Transportation Study). According to this estimate, employment in the Port of Long Beach was approximately 14,400 in 1970 and approximately 16,000 in 1974. An independent estimate by the Harbor Department in 1975 indicated employment of approximately 14,900 -- consisting of approximately 9,200 employees working on non-port property, 5,300 working on port property, and slightly over 300 people employed directly by the Harbor Department.

Projections of employment for the Long Beach Regional Statistical Area and Los Angeles County as a whole have been prepared as part of certain long term planning studies. These indicate a very modest rate of employment growth in the County as a whole, increasing from 3.17 million in 1970 to 3.76 million by the year 2000. This represents an increase of only 18.5 percent over a 30-year period. As can be seen from Table III-3, the increase projected for the Long Beach Statistical Area is even more modest, reflecting the highly mature and fully urbanized character of that community.

Table III-3

Employment Trends in Selected Areas, 1970-2000
(000)

Year	City of Long Beach	Long Beach Statistical Area	Los Angeles County
1970	159.2	194.1	3,170.3
1980	163.4	199.2	3,350.0
1990	170.4	207.8	3,550.0
2000	174.7	213.0	3,758.0

Source: Estimates per latest LARTS revision as cited in Suggested Revision of SCAG Growth Forecast Policy, June 1975

A special tabulation of LARTS commuting data indicates that approximately 40 percent of persons employed in the Port of Long Beach live in the City of Long Beach. An additional 22.5 percent of Port employees live in an area that may be described as the southern portion of the south bay region, including the communities of San Pedro, Wilmington, Harbor City, Lomita, and Palos Verdes. The relative share of these and other areas in the residence pattern of the Port of Long Beach employees is shown in Table III-4.

Table III-4

Home-to-Work Commuting Patterns
For Port of Long Beach Employees, 1974-2000*

<u>Area</u>	<u>Year</u>			
	1974	1980	1990	2000
City of Long Beach	39.9%	39.7%	39.2%	38.8%
South Bay Cities				
South Section	22.5	22.3	22.1	22.0
North Section	5.3	5.3	5.2	5.1
South Central L.A.	6.4	6.3	6.2	6.0
Southeast County	6.0	5.9	5.7	5.5
Other L.A. County	9.2	9.1	9.1	9.1
Other Counties	<u>10.7</u>	<u>11.4</u>	<u>12.5</u>	<u>13.5</u>
Total:	100.0%	100.0%	100.0%	100.0%

*For Port of Long Beach area boundaries, see page 42 of the Master Plan.

Source: Extrapolations from special computer tabulation of 1990 trip analysis data provided by CALTRANS (California Department of Transportation) for Traffic Analysis Zone 13033 corresponding to the Long Beach Harbor District.

Economic Role of the Port

The Ports of Long Beach and Los Angeles together, form the second largest center of maritime commerce in the nation and one of the major shipping areas in the world. Of the two facilities, the Port of Long Beach has been growing at a significantly faster rate. In terms of total cargo, Long Beach volume has more than tripled from 10 million tons in 1959 to 32.7 million tons in 1977. Particularly significant growth at the Port of Long Beach has occurred in the area of containerized cargo. In the seven year period between 1969 and 1976, containerized cargo increased more than eight fold from 571,000 tons to 4,661,000 tons.

The total value of cargoes handled by the Port of Long Beach have increased in the last 28 years from \$221 million in 1949 to almost \$7.6 billion in 1977.

The Port of Long Beach has a substantial although not readily definable, impact on the regional southern California economy. A recent study designed to estimate the multiplier effect of the two San Pedro Bay ports on the southern California regional economy indicates a multiplier effect of approximately 1.8. This suggests that for every dollar generated in the Port, an additional \$0.80

is generated in the local economy. These findings are, in general, consistent with other Port multiplier studies that have been undertaken in other parts of the nation.

Personal Income and Retail Sales

Personal income within the City of Long Beach seems to be just slightly higher than the average for Los Angeles County as a whole. In 1969, the median family income was \$11,202 as compared to \$10,968 for the County. Personal income has continued to grow rapidly in Los Angeles County, increasing by 30 percent between 1969 and 1973 as measured in terms of per capita income.

Retail sales patterns in both Los Angeles County and Long Beach have shown substantial increases over the last five years, reflecting the general pattern of inflation and continued economic growth. By this measure, trade activity has increased even more rapidly in Long Beach than in the County as a whole (48 percent versus 40.1 percent for the period 1971-1975). Per capita retail sales have increased dramatically, particularly since Long Beach population actually has declined.

Municipal Fiscal Operations

A variety of municipal and taxing jurisdictions will be affected by the expansion of Port activities. The most important of these are the City of Long Beach, the Long Beach Unified School District, the Long Beach Community College District, and the Los Angeles County General Fund. A brief tabulation of these key jurisdictions and their current property tax rates are shown in Table III-5.

Table III-5

Major Taxing Jurisdictions Levying Taxes in the Harbor District (Tax Code Area 5501)

Name	Tax Rate Per \$100 Assessed Valuation
Los Angeles County General Fund	\$ 4.2544
Other County Taxes	.5787
Long Beach Tax District Number 1	2.171
Long Beach Unified School District	4.3703
Long Beach Community College District	.6467
Other Taxing Jurisdictions	<u>.2910</u>
Total:	\$12.3121

Within the City of Long Beach, the most important current sources of revenue are the property taxes (26.5 percent) and sales taxes (12.5 percent).

All property in Los Angeles County other than that owned by public utilities is assessed by the County Assessor at 25 percent of fair market value. Assessed valuation in the City of Long Beach has risen modestly over the last five years from \$1.01 billion to \$1.18 billion. Over the same period, the City tax rate has increased by roughly five percent or \$.10 per \$100 of assessed valuation. The joint effect of this has been an increase of some 20 percent in property tax receipts from \$19.7 million to \$24.3 million. In general, assessed valuations have experienced a more modest increase in the City of Long Beach than in the County as a whole which, over the same period, showed an increase in assessed valuation of almost 40 percent from \$19.2 billion to \$27.1 billion.

Fiscal Operations of the Port of Long Beach

The Long Beach Harbor Department functions as a semi-autonomous agency within the structure of the City of Long Beach. It collects revenues for various services and for rental of publically owned property and, from these revenues, meets its own expenses and debt service requirements, and transfers certain funds to the City in compensation for legal, fire, police, and other City services. Operating income in the Port has risen sharply over the last ten years, from \$6.3 million in 1966 to \$23.3 million in 1977. Expenses also have increased over the same period but at a smaller rate, producing a very sharp increase in net operating income. In 1966, net operating income was \$1.48 million. This increased by \$5.5 million over the next eleven years to a 1977 level of \$7.0 million. This represents a 372 percent increase over 11 years. The Port also has certain other non-operating income and expenses, primarily charges and revenues for the use of funds. These currently add approximately \$2.53 million to the Port's net income. In 1976-77, the total net income of the Port was \$9.6 million. The Port is relatively unique among American ports in that it produces and has produced for several years a significant net surplus of revenues over expenses and hence is not a drain on City government.

Major sources of revenue to the Port are wharfage, dockage, and rentals. Wharfage is the charge made to shippers for moving various commodities across berths on a per-ton basis. Wharfage was \$9.92 million in fiscal 1976-77, or about 43 percent of the Port's total operating revenues. Dockage is the "parking" charge made by the Port for a ship tying up at a berth and is a function of the ship's length. This income source produced \$2.3 million in 1976-77 or 9.8 percent of the total. Another prime source of revenue to the Port was for rental of water area, land area, and Port constructed facilities to shippers and other tenants in the Port. This generated \$9.85 million in 1976-77 or approximately 42 percent of the Port total revenue.

The Port maintains its own capital budget and issues its own bonds supported by revenues from Port operations. In July 1970, the Harbor Department sold \$30 million of harbor revenue bonds to provide

financing for a comprehensive three-year development program including construction of major new container terminal facilities. The year 1970 was a particularly expensive time for such financing, by virtue of high interest rates. To offset these interest rates, a second issue of \$21.9 million in harbor refunding bonds were sold in 1972. The proceeds from this issue are invested in an interest-bearing government security until 1980, at which time the original high interest revenue bonds outstanding will be retiring.

Assessed valuation in the Port of Long Beach in 1975 was approximately \$89.5 million. This is made up of several different and independently assessed components. Because Port-owned property is public property, it is not susceptible to taxation. However, when this property is leased by private operators, the lease creates a possessory interest in the property which is in fact taxable. Such possessory interests are separately assessed from fee ownership of various non-Port-owned property in the Harbor District. A brief tabulation of the \$89.5 million in assessed valuation in the Port is shown in Table III-6.

It should be noted that since utility improvements are not separately allocated by location within and outside the Port (they are all part of a much larger tax code area), the "true" assessed valuation of the Port is probably somewhat higher. The estimates shown in Table III-6 include only land values for properties owned by utilities.

Table III-6

Assessed Valuation By Type of Ownership
In The Long Beach Harbor District, 1975

<u>Type</u>	<u>Assessed Valuation</u>
Secured Property Owned in Fee	\$16,363,400
Secured Property Represented by Possessory Interests in Leases	17,126,100
Land and Improvements (excluding mineral rights) on Oil Production Property	10,209,900
Land Values of Property Owned By Public Utilities (State assessed)	914,300
Unsecured Property	<u>44,869,100</u>
Total:	\$89,482,800

Source: Los Angeles County Assessor and State Board of Equalization

In addition to the overall tabulation of assessed valuation, a separate analysis was made of assessed valuation by commodity type for primary port facilities. This tabulation as shown in Table III-7 indicates that highest assessed valuation is for petroleum bulk cargo uses at \$75,500 per acre while the lowest is at \$44,500 per acre for general cargo.

Table III-7

Estimated Assessed Valuation Per Acre By Commodity Type
In Primary Port Facilities, 1975
(\$ in 1000's)

<u>Commodity Type</u>	<u>Total Acres</u>	<u>Valuation Per Acre</u>
Containers	221.4	\$64.6
General Cargo	389.6	44.5
Petroleum	70.3	75.5
Liquid Bulk	15.1	60.1
Dry Bulk	101.3	57.6

Source: Estimates by Socio-Economic Systems, Inc., from tax records.

ENVIRONMENTAL IMPACTS

Due to the inherent broad nature of the Port of Long Beach Master Plan, environmental impacts from the wide range of projects envisioned in the Plan necessarily must be assessed in a more general and qualitative sense than in an individual EIR for a specific project. Thus, detailed analyses of the effects of each project are reserved for the EIR's which have been or will be prepared for those projects.

In accordance with the Guidelines for Implementation of the California Environmental Quality Act of 1970, as amended, this document will:

- a) Focus on those environmental effects deemed to be significant or potentially significant;
- b) Insofar as possible, deal with indirect and cumulative effects which could be expected if this plan is adopted; and
- c) Incorporate other documents, which are part of the public record, by reference.

This document attempts to forecast impacts engendered by the scope of the Master Plan as accurately and as fully as is practical within the constraints noted above, in order to provide the public and decision-makers with sufficient information on the environmental issues and considerations pertinent to the Plan.

Soils/Geologic Hazards

Almost all of the proposed projects will involve some amount of pavement removal, grading and/or cutting and filling. Although slopes will have to be altered to some extent for stability and proper drainage, there will be no significant alteration of present land contours.

Due to the nature of the foundation soils and the historical hydraulic filling that has been performed in creation of much of the Port land area, the load bearing qualities and settlement characteristics of soils in certain areas of the Port may not be suitable for supporting heavy loads imposed by structures such as silos, liquid bulk storage tanks and the like. In cases where such areas are to be utilized, appropriate engineering and soil preparation techniques will be required.

Projects involving disturbance of the upper soils have the potential to damage existing subgrade facilities and to result in soil erosion and subsequent siltation into the harbor, again calling for appropriate engineering measures.

Because the Port of Long Beach is located in a geologically unique and seismically active region, all existing and planned structures are subject to a number of geologic hazards, noted as follows:

- Ground rupture-- The active Newport-Inglewood fault zone is situated within four miles to the north of the Port, and the potentially active Palos Verdes Fault lies within three miles to the west. However, no active or potentially active faults are known to pass beneath Port lands, and it is thus concluded that there is little possibility of surface or near surface ground rupture due to faulting anywhere in the Harbor District.
- Earthquake-Induced Ground Motion-- Movement on any of the active or potentially active faults described in the Environmental Setting could cause significant ground shaking at any location within the Port. The level of potential risks for existing or planned developments depends upon the exact location of the project, site-specific geologic conditions, and detailed design of structures. The Environmental and Geotechnical Sampling Program conducted by Long Beach Harbor Consultants (1976) provides data related to seismic risks. Seismic design for structures in the Port is generally based on earthquakes of Richter magnitude 7.0 on the Newport-Inglewood fault, with peak ground accelerations on the order of 0.25g. This peak acceleration would be approximately equivalent to ground shaking of Modified Mercalli Intensity VII to VIII (See MES, Table II-3-2).
- Liquefaction-- Due to the character of the soils of the natural and man-made land in the Port of Long Beach, soil liquefaction is considered a general possibility, if certain major earthquake ground motions were to occur. In order to avoid adverse impacts, new landfills must be constructed using improved techniques over those assumed to have been used to create the existing landfills.

Soils in the Pier J area have been intensively studied by Long Beach Harbor Consultants (1976) and Dames and Moore (1977). Soil borings have also been conducted by LeRoy Crandall and Associates for the Pier D Bulkloading project (Port of Long Beach, 1977a). With the exception of these areas, no detailed testing program has been performed on the natural foundation soils encountered in the other proposed development areas. Additional sampling and testing programs to evaluate liquefaction potential is necessary where structures are to be located on

soils known to have such an orientation.

- Seismic Water Waves-- Wave run-up calculations noted in the MES indicate that during a 100-year tsunami event at high tide conditions, several areas within the Port could sustain overtopping of bulkheads and inundation of piers. The Palos Verdes Peninsula and Santa Catalina and San Clemente Islands offer some protection to the Port of Long Beach from tsunami waves. Also, the early warning system has minimized the potential for death or injury resulting from distant events. However, while it is anticipated that no significant damage would be realized in on-land structures, there is still the potential for damage to harbor facilities, wharf front structures and boats during such events.

Seiching in Long Beach Harbor could affect shipping operations in two ways. Longer period bay seiches could cause strong currents in the entrances to harbor basins which could adversely affect the navigation of large ships. Shorter period harbor seiches could adversely affect ships moored at various berths.

Air Quality

The Master Environmental Setting (MES) discusses the overall air quality levels in the South Coast Air Quality Management District. It is noted that air quality has not yet met the standards prescribed by Federal and State regulations. The MES indicates that there is considerable doubt that some of these standards can be met by the year 2000, given present day technology. A detailed analysis of air emission factors and related impacts is contained in the SOHIO EIR (Port of Long Beach, 1977b).

Air pollutants which are and will continue to be generated within the Port of Long Beach are due primarily to the transfer, storage and consumption of various forms of energy. Fuel-consuming (energy-intensive) operations include the following:

- The transport of cargo aboard ship
- The unloading and handling of cargo
- The transport of goods to the hinterland markets
- Activities supporting the above functions-- including electricity consumption at primary port facilities, commuting by port employees, and travel by others visiting the port for a variety of purposes.

Important sources of air pollution that are not energy-intensive operations include the transfer and storage of crude oil and

petroleum products. Oil and gas production in the Harbor District also is a major emissions source.

Evaluating the Master Plan's long-term impacts upon air quality involves many more uncertainties than are involved in assessing the specific impacts of a particular project. Some of these uncertainties may be delineated as follows:

- Changing technology is one factor that could markedly alter the expected emissions. For example, improved tank seals and vapor loss detection methods may result in a reduction in storage tank emission factors by as much as ten-fold (SCAPCD, 1975). On the other hand, future emission control methodologies may not be as effective as assumed in the projected reduction of motor vehicle emissions. As new technology and updated emissions findings appear, they will be incorporated into future air quality impact studies carried out as part of the EIR analysis for individual proposed projects.
- The uncertainties surrounding the amounts and quality of future fuel supplies bear directly on projections of air quality impacts. Parameters especially affected would be SO₂ emissions from ships and power plants, since these are directly proportional to the amount of sulfur in the fuel.
- Changing economic and political conditions may cause changes in levels of port activity. Projections of port activity generally have been along linear trend lines, which indicate that trends of the past ten to twenty years will continue for the next 25 years. While this is not an unreasonable assumption, it could easily be in error, causing a corresponding error in air pollutant estimates.
- The significance of air pollutant emissions depends upon the surrounding air quality, which may change with time. Air quality standards are based upon a threshold theory, which holds that air pollutants are generally harmful only when their concentration exceeds a certain threshold concentration (oxygen, for instance, could be considered a pollutant at high enough concentrations). If pollutant levels in the local and regional area are brought under the threshold standard, and the Port's emissions do not raise the levels over the threshold, the Port's emissions will have less impact. Also, projected worsening conditions for some pollutants (such as

SO₂) may magnify the significance of the Port's emission of these pollutants. Various projected dates of attainment of ambient air quality standards are given in the Master Environmental Setting.

For the above reasons, quantitative estimates for future pollutant levels resulting from a Master Plan are difficult, problematic and not necessarily meaningful. Specific pollutant inventories are more appropriately reserved for individual project EIRs. However, some general statements can be made regarding trends in air quality and the effects engendered by this proposed Master Plan.

Many major emission sources will be affected as the Port develops. These are, in order of magnitude, petroleum production, transfer and storage operations; land and sea traffic; and electricity generating facilities. If the potential net increases in emissions from these sources were indeed realized, they would represent a significant impact on air quality in the South Coast Air Basin.

Port activities generate vehicular traffic that carries goods and workers to and from the Port. Planned development of the Port will continue to cause increases in this traffic. A reduction in emission rates is projected to occur because of vehicle emission control measures. This projected large reduction will override traffic increases and result in decreases in hydrocarbons, carbon monoxide and nitrogen oxides. These decreases are on the order of one percent of the present emissions of the pollutants in the four-county South Coast Air Quality Management District (SCAPCD, 1975). The air quality impacts of increased traffic related to port growth can be masked by the overall decrease in traffic emissions expected in the future in the South Coast Air Basin. However, as much as two-thirds of the emissions reductions achieved by vehicular emission controls on port-related traffic could be cancelled out by traffic volume increases.

Increased movement of crude oil and refined products in and out of the Port will lead to an increase in hydrocarbon emissions. The additional storage of petroleum as described in the Master Plan will contribute to this increase. These emissions are significant because reactive hydrocarbons react with oxides of nitrogen in the presence of sunlight to form ozone, the primary constituent of "smog".

Oil and gas operations within the Port currently may emit up to approximately twelve tons/day of hydrocarbons. However, declining oil field production rates will progressively reduce these emissions (expected to be about one ton/day by the year 2000).

Future increased ship operations could significantly increase sulfur dioxide and nitrogen oxides emissions in the Port. Sulfur dioxide can form materials that reduce visibility and are suspected

to be harmful to human health. The hourly standard for SO₂ is easily met in the SCAQMD, although the stringent 24-hour standard is far from being attained (see MES).

Other energy (electricity and gas) for expanded port operations also would be contributory to increases in SO_x and NO_x emissions. However, incremental increases would be spread over the multi-county grid of power generating stations and would not be totally emitted from the Port itself.

The major emission sources (vehicular traffic and electricity generation) are widely dispersed throughout the SCAQMD. Some pollutants, such as hydrocarbons from crude oil storage tanks, will have an impact which is primarily regional, spread throughout the basin rather than localized at a point in or near the Port. As particular projects are implemented at specific locations, the general impacts described here will be fully analyzed in detailed air quality impact studies for each project.

Noise

Noise impacts in the area will be primarily due to construction activities. Most noise will be very localized; the major source of noise discernible outside the Port will be from those projects involving pile driving activities. This will be sporadic and will vary during the time span covered by the Master Plan. Individual project EIRs will analyze potential noise impacts in detail. None of the proposed projects will be unusually or significantly noisy during the operational phase.

Hydrology/Water Quality

The Master Plan, as proposed, would not result in significant alteration of tidal circulation in the harbor. A large circulation gyre (vortex) exists in the Outer Harbor. This is beneficial for marine life as well as for water quality. The existence of this gyre has been confirmed by field measurements and by model tests conducted at the U.S. Army Corps of Engineers Waterways Experiment Station (McAnally, 1975). The area where the gyre occurs will not be significantly affected by Master Plan developments.

Technically, the gyre is formed through transportation of flow vorticity created at the Harbor entrances (Queens Gate and Angels Gate) during the flooding, or rising tide. The change in the total volume of water in the harbor between low tide and high tide is known as the tidal prism. The proposed Pier J landfill will not affect the tidal prism. The total vorticities

within the harbor will thus be maintained. In addition, conserving the space available for the gyre to propagate will maintain the aeration capability of the harbor water.

Another gyre now exists in the Long Beach Harbor east of Pier J. The proposed channel modification and Pier J completion will require study at the Waterways Experiment Station to determine effects on tidal circulation.

The effect of short period waves (waves of 12 to 18 seconds between crests) on the harbor is expected to be quite small. However, one of the most important considerations relative to the hydraulic characteristics of the harbor under the Master Plan will be whether changes are induced in the response of the harbor basins to long-period waves (wave period of one to six minutes between crests). The net effect can be finalized only through a detailed analysis of the total response characteristics of the harbor complex in conjunction with reliable data on the incident long wave spectrum. Currents induced by the long-period oscillations could be increased. These currents would be directly proportional to the height of the long waves. In all likelihood, these currents would not be strong enough to cause any navigation hazards.

The proposed development will not have any effect on freshwater sources. All construction will take place well above freshwater aquifers. Groundwater in the area (everywhere) is intruded by saline water and is unfit for consumption. Temporary diversion of surface drainage and run-off is expected during landfill construction. Once fills are completed with facing and paving, run-off will revert to the present patterns. No significant effects are expected, either on ocean water quality or on drainage patterns.

Ocean water quality will undergo a mixture of other beneficial and adverse impacts from the activities associated with the Master Plan. Dredging the polluted bottom sediments from channels in the inner and middle harbors will improve water quality. At present, these polluted sediments are continually stirred up by wind and wave action, and by ships' propellers. Subject to the latest ocean dumping criteria promulgated by the EPA and the U.S. Army Corps of Engineers, these polluted sediments would be removed and placed on land where they would not release pollutants to the water column. This should result, over the long term, in an improvement in water quality in these channels and slips.

Where dredged material is deposited as fill, some of the material usually flows over weirs and retaining dikes. Until this settles, it has an adverse affect on water quality. If the dredged material is polluted, some pollutants may re-enter the water column. It may be feasible to place polluted sediments in the innermost areas of fills to prevent resuspension. Even unpolluted sediments, however, would have a short term adverse impact on ocean water quality, causing turbidity until sediments settled

out of the water column; this effect would last only a few weeks at most. The most severe impact would be reduction of dissolved oxygen in the water column. This, in turn, would adversely affect biota; effects on biological organisms will be discussed in the section dealing with biological impacts.

Dredge spoils can be treated with flocculents to reduce the time it takes for sediments to settle. This treatment also will minimize the release of pollutants absorbed by the sediments. Dredged materials consisting of very finely divided silt take extremely long times to settle, and will have to be deposited at an EPA-approved dump site (subject to EPA criteria), to avoid adverse water quality impacts. Polluted dredge spoils cannot be disposed of at sea, so they would necessarily be treated with flocculents and placed in fills or disposed of on land in order to avoid polluting ocean waters.

Biological Environment

The large circulation gyre in outer Los Angeles harbor probably accounts, in large part, for water quality and flushing in the outer Long Beach Harbor. The gyre presently serves as a large, semi-contained oxidation pond for wastes from the Terminal Island sewage treatment plant and cannery effluents. A healthy, rich ecosystem dependent on those nutrients has developed since water quality control measures were instituted in 1969. Recently, the treatment plant has been upgraded to secondary treatment; further, the canneries have been required to route their effluents through the plant. This significant removal of nutrients from the waters of the Outer Harbor area may affect the entire harbor ecosystem. Species diversity and/or biomass could be adversely affected, and regulatory agencies must view future developments in both Long Beach and Los Angeles Harbors in the context of the modified nutrient load. A narrow view could lead to false impressions of individual project impact on San Pedro Bay biota.

The proposed dredging operations in the Master Plan will have both beneficial and adverse impacts on harbor biota. Most of the adverse effects are short-lived, and the benefits are long term. Landfills, on the other hand, can have both temporary and permanent effects.

The importance of benthic animals to the entire food web of the harbor is well recognized. Polychaete worms comprise the largest number of harbor benthic organisms. They filter organic detritus and bacteria out of water, or consume them from sediments when feeding. Polychaetes, in turn, furnish a major food source for large harbor fish populations of a number of species. Dredging and filling operations can potentially cause the loss of significant amounts of these organisms. For example, data indicate

that benthic (bottom dwelling) biomass averaged 20-30 gm/m² in the outer Los Angeles Harbor, 200 gm/m² at near-shore stations, and 500 gm/m² in the central portion. Using 200 gm/m² as a conservative figure for clean sediment areas, it is estimated that 0.4 to 0.9 x 10⁸ grams (40 to 90 metric tons) of biomass would be lost in the Pier J completion alone (50 to 110 acres).

Inner and middle harbor dredging will have several short term impacts on biota. Turbidity associated with dredging would damage or kill organisms on the harbor bottom, on pilings, and in the water column, by clogging respiratory and feeding surfaces. Phytoplankton blooms and large increases in coliform counts may occur, which would temporarily restrict body contact water sports, if any occur in the area. The release of toxic pollutants into the water column can occur, although sediments tend to scavenge rather than to release pollutants. Since inner harbor sediments are more polluted, the possibility of food chain amplification of toxic materials exists temporarily if those sediments are dredged. The material obtained from deepening the Long Beach Main Channel and from borrow areas south of Pier J are expected to be clean, and only turbidity and sedimentation would occur during dredging.

Benthic organisms would recolonize the bottom areas after dredging, although possibly in reduced numbers. Studies indicate that recolonization can take place almost immediately in the fine sediment that settles out, provided adjacent areas with reproducing populations are not permanently damaged. In some seasons, juvenile populations similar to the original community are established in 12-18 weeks, and a mature population occurs in 2-3 years. Moreover, there are long term benefits in removing the top sediments from inner harbor channels by dredging since at present, winds, tides, storms and ship traffic all resuspend polluted sediments, contributing to episodes of low dissolved oxygen and phytoplankton blooms in these waters.

Dredging during winter months probably would have a lesser impact on most fauna in the harbor, since populations tend to be smaller at that time, there are temperatures and circulation is better. Fish spawning occurs in January-February, however.

Some 65 species of fish were collected by recent trawls in the harbor (double that number have been reported there). Anchovies in the harbor are prized as sportfishing bait and represent the juveniles of species caught commercially after they migrate to coastal waters. There will be no significant elimination of food, feeding grounds, living space, or nursery grounds for coastal fish schools, and thus it is doubtful that the extensive populations would be significantly affected.

There is little unique terrestrial life in the port. Plants, for the most part, are weeds or artificially introduced ornamental landscaping. While sometimes quite attractive aesthetically, they have little or no special biological character or value.

Terrestrial animals in the port are mostly rodents and domestic or wild cats that prey on the rodents. Few birds nest in the Port and no water birds build nests on land.

The terrestrial environment will be enhanced by landscaping, and by the public recreational areas provided for in the Master Plan. A reduction in weeds may reduce food for some local land birds, although the present Pier J area is not an important feeding or nesting site for water related birds. At present, the terrestrial environment is not notable for either its plants or animals.

Socio-Cultural Environment

The socio-cultural character of Long Beach, including population and cultural amenities, will be unaffected. Master Plan projects are not anticipated to attract many new employees from outside areas, so little change is anticipated in local population patterns or in the quality or quantity of most cultural amenities. There will be slight adverse impacts on shopping facilities, recreation and entertainment facilities, and possibly to unknown archaeological and historical sites.

The Master Plan is compatible with designated land uses, and conforms with land use goals and designations as specified in elements of the City's General Plan. In order to protect local marine environments, the Conservation Element seeks a "control" of additional landfill activities. The Master Plan conforms with this policy, since the same philosophy is inherent in the Coastal Act. Also, the Seismic Safety Element points out that the port is subject to environmental risk including liquefaction, tsunamis, seiches, and partial flooding. By implementing the Port's Master Plan, public exposure to these risks would not increase, since proper engineering design and precautionary measures will be instituted.

Amenities include housing, cultural and shopping facilities, recreation, entertainment, and historical and archaeological sites. Although the Master Plan will have moderate adverse impacts on some areas, housing, shopping and cultural facilities will be affected only indirectly through increased use. While no known historical or archaeological site will be affected, there is a possibility that unknown sites and/or isolated artifacts will be destroyed during some individual project implementation.

The aesthetic nature of the Port will not be altered significantly by the Master Plan, since the Port is considered "not scenic" by aesthetic standards. Nonetheless, it is interesting and attracts visitors because of its industrial character. Port expansion will enhance the attractiveness of the port for people

who appreciate such views. Although the proposed projects will not degrade an area of relatively low scenic value any further, some structures associated with certain of the projects, such as large storage tanks and silos, do have the potential of disrupting vistas from various points along the City shoreline.

Traffic and Transportation

There are no major improvements now planned by the Port of Long Beach, the Port of Los Angeles, the City of Long Beach, the City of Los Angeles, or Caltrans, that would significantly increase the capacity of the street and freeway system in the study area by the year 2000. The extension of the Terminal Island Freeway from its present terminus at Willow Street to the San Diego Freeway is still included on the statewide master plan of highways and freeways but is not included in the state's 20-year construction program. Nor are there any long-range plans to widen the Long Beach Freeway south of the San Diego Freeway; however, it is well recognized by all concerned agencies that the north-south transportation corridor north of the Port area will be very deficient in vehicular capacity in the future if the presently planned area-wide developments are not implemented and there is no significant change in today's mode of travel. For the period of time covered by the Master Plan, however, the existing street system will be adequate in terms of capacity, although there will be periods of peak demand when congestion may result.

The future development of the Port also will increase the temporary population of the area (ship crews, construction workers, etc.) which, in turn, will cause increases in vehicular traffic. The traffic generated by these activities will be sporadic in nature and of relatively short duration over the time period indicated for implementation of the Master Plan and is not anticipated to be a significant factor in the overall vehicular traffic impact. Also, the increases in traffic due to the further development of recreational uses within the port will be minimal.

Besides the additional traffic that will be generated by the implementation of the Master Plan of the Port of Long Beach, there are a number of other planned projects in the vicinity of the Port that will generate substantial traffic volumes on the study area street system. The General Plan for the City of Long Beach and the City of Los Angeles envision future projects and land uses that will contribute to future traffic volumes within and adjacent to the Port of Long Beach.

Over the long term, if the Long Beach Freeway is not widened and the Terminal Island Freeway not extended, the traffic demands on the entire street system in the eastern portion of the study area could exceed available capacities by more than

100 percent at many locations, an intolerable condition. Ocean borne commerce generated in the market area and shipped through the Port of Long Beach will continue to increase during the Master Plan period. This increase will require the development of additional cargo handling facilities for containers, general cargo, petroleum, liquid, and dry bulk. With the exception of petroleum, all cargo is transported from or to the port by rail or truck. Assuming no change in the current method of transporting port-related cargo, both rail and truck movements would increase in volume. The main line rail system serving the Port has ample capacity to accommodate the increase in demand. Long-range plans provide for the necessary terminal facilities to meet future port developments.

The increase in Port-related truck traffic will incrementally contribute to the area-wide traffic congestion during peak periods. For example, the facility would accommodate the most new truck trips from the Port is the Long Beach Freeway. However, the additional Port demand which would be only a small portion of the total traffic demand on the freeway north of Pacific Coast Highway. The portions of the street system within the Port that will have to absorb the largest increases in truck traffic (primarily Harbor Scenic Drive and Pico Avenue) are estimated to have future demands well below future capacities, so these facilities should continue to operate in an acceptable manner.

The traffic study included in the General Plan EIR (Port of Long Beach, 1976a), stated, "Ship arrivals to the Port are estimated to increase from approximately 2870 per year at the present time to 4150 per year by 2000, an increase of about 45 percent. Based on no appreciable change in ship movement patterns, this increase would be 1280 vessel movements per year and 12 on a peak day. An increase in peak daily ship traffic of this magnitude would not cause any significant operation problems within the harbor area". Obviously, ship traffic impacts would be even less significant in the timeframe covered by the Master Plan. Based on historical ship collision accident data for the combined Los Angeles/Long Beach ports, the collision rate is now approximately one collision for 2500 movements. If this collision rate remains constant, the additional ship traffic generated by Master Plan projects would not significantly increase the risk of ship collisions. Note that the collision estimate is considered to be conservative (i.e., high) because there have been no vessel accidents in the Port of Long Beach itself in recent years.

It is not anticipated that water traffic generated by naval or recreational activities within the Port will change significantly between now and the year 2000. The United States Navy has no current plans for expansion of the Long Beach Naval Shipyard, and neither the Port of Los Angeles nor the Port of Long Beach Master Plan encourage significant increases in small craft activities. Future City plans for marinas could contribute to increases in small craft activity, but no adverse impacts are envisioned for the period covered by this Master Plan.

MITIGATION OF SIGNIFICANT IMPACTS

Soils/Geologic Hazards

Natural soil deposits prone to liquefaction lie under the Outer Harbor area, as well as certain other areas of the Port of Long Beach. In an earthquake of sufficient intensity and duration, these soils could lose shear strength and liquefy; as a result, structures such as dikes, landfills or pilings supported by the soils could sustain distortion and possible failure. Further, there is always the potential for structural damage during ground movement due to a severe earthquake anywhere in Southern California.

However, potential risks of damage or collapse for structures designed in accordance with provisions recommended by various Harbor Department consultants are not considered to be greater than for any other structures constructed in Southern California designed with the same sound, stringent standards. Future Port projects will require detailed soils analyses and, where necessary, soils will have to be properly improved and landfills constructed with appropriate state-of-the-art engineering techniques. This will reduce, insofar as is possible, risks of damage from the maximum credible seismic occurrence which could affect the Long Beach area.

Air Quality

Air pollutant emissions will occur during the construction phase of all Port projects and during the operational phase of projects involving varying degrees of ship, rail and vehicular traffic. The greatest impacts will result from projects relative to petroleum movement and storage. The impacts from other types of projects will be relatively minor on an individual project basis, but could be cumulatively considerable.

However, it can be generally stated that all future development in the Port will be accomplished using best available control technology. Further, all projects will be subject to New Source Review (by the SCAQMD), and if maximum allowable levels are exceeded, "trade-offs" will be required so that a net benefit in air quality is realized in the SCAB as each individual project becomes operational. It is assumed that the future will bring improved air pollution control technology and policies in order to further insure that reasonable and necessary development of the Port does not degrade air quality.

On a project-by-project basis, the following mitigation measures can be implemented to reduce air quality impacts. New Source Review requirements will mandate certain of the measures to be incorporated as best available control technology:

1. Use of low-sulfur (0.5% or less) distillate fuel by all ships while in port.
2. On oil tankers, use of segregated ballast systems, closed inert gas systems in cargo tanks, maximum use of exhaust scrubbers (and possibly vapor recovery systems for cargo hydrocarbon evaporations); also, vapor-emitting activities such as purging empty tanks and ballasting can be prohibited while inside the Port.
3. Use of shore-generated power (its pollution can be more easily monitored and controlled) wherever possible.
4. Use of proper soot blowing (to remove soot accumulations from boiler heating surfaces) procedures by steamships, i.e., by blowing before docking and, once docked, by making a number of blows at frequent intervals to prevent large accumulations.
5. Use of low-polluting transportation to move cargo to the hinterlands (railroad instead of trucking, where possible).
6. Use of car pooling by Port employees.
7. Use of state-of-the-art technology for petroleum storage facilities (e.g., floating roof tanks).

The implementability of these various mitigation measures varies. Some measures have advantages to shippers over and above pollution control. Tanker inerting systems, for example, also reduce fire hazards, inhibit corrosion, and increase unloading rates (Port of Long Beach, 1976a). Use of low-sulfur distillate fuel brings similar reductions in maintenance costs (U.S. EPA, 1973). Other measures are more difficult to implement since they have little accompanying economic benefit (e.g., emission controls on ships, vapor recovery systems) or are perhaps physically impossible for older ships (e.g., storage of a separate "clean" fuel for use in port, use of segregated ballast, or an inerting system). These measures would have to be enforced where feasible by the appropriate air quality regulatory agency but with the Port's support and cooperation. Some measures already are being encouraged by the Port (e.g., use of electrically-powered cranes to unload containerized ships, design of adequate railroad facilities to serve new and remodeled berthing areas). Many measures are practiced that could be carried on outside of the port without excessive inconvenience (e.g., soot blowing, purging, tanker ballasting), and should, therefore, be prohibited as a condition for operation of ships within the Port.

Noise

Noise impacts will not be particularly significant since they primarily will be restricted to the industrialized port area. Prime sources of noise, such as pile driving activities, can be restricted to daylight-dark working hours so as to minimize disturbances to surrounding residential receptors.

Hydrology/Water Quality

Master Plan projects are not expected to significantly alter tidal circulation or to amplify sea waves or long-period wave oscillations in Long Beach Harbor. Development scenarios involving various schemes of land contour alteration and fill are evaluated by model study at the Waterways Experiment Station to be certain that there are no cumulative adverse effects. Individual projects will be designed using engineering techniques that preserve existing flow patterns -- for example, the proposed SOHIO terminal was designed with an open trestle and breakwater system to assure that circulation is maintained in the Outer Harbor.

Dredging activities, particularly where polluted sediments are involved, have the potential to significantly degrade water quality, albeit on a temporary basis. However, proper project design, dredging equipment, diking, treatment of spoil, etc., can minimize impacts of turbidity, lowered dissolved oxygen, etc., and assure that these phenomena are as minor and short-lived as possible. The Port of Long Beach is subject to regulation of all activities involving work in the water by EPA, the Army Corps of Engineers and the California Regional Water Quality Control Board. Compliance with the requirements of these agencies will assure that long term beneficial uses of the harbor's waters are preserved.

It can be stated with relative certainty that some long period oscillations, at least on the order of existing conditions, would be produced if a tsunami wave strikes the harbor region (because of the increases in the number of resonant modes for certain wave periods).

Biological Environment

As indicated in the discussion of impacts, the most significant impacts in the marine environment will be sustained by benthic organisms. Since these organisms form an all-important link in the food chain in the ecosystem of the harbor, any impacts

will be passed along the food chain in the form of reduced food availability, concentration of toxic substances, etc.

As noted above, proper dredging technology can minimize loss of benthic organisms. Further, recolonization of bottom areas by benthic organisms can be expected after dredging and filling activities are completed.

Certain agencies having permit and/or review authority over Port projects have indicated an interest in Port commitment to mitigation measures, i.e., "trade-offs" for habitat modifications/losses due to projects to be implemented under the Master Plan. It is the Port's contention that in most cases, mitigation for any habitat losses can be "built in" to any given project. For example, in the SOHIO project, while there will be a substantial loss of bottom habitat due to dredging and placement of the breakwater, a greater amount of subtidal/intertidal habitat will be created due to the rocks and pilings. If the various agencies are not in agreement with this philosophy, the Port is willing to cooperate in a reasonable, responsible program wherein appropriate criteria are developed by the agencies indicating relative "habitat values" and suitable trade-off methodology to apply to all planned future projects.

The disposal at sea of organic soils from dredging would adversely affect ocean water quality since this material, when resuspended, does not rapidly settle out of the water column. If dredging operations could be temporally coordinated with the proposed Pier J completion filling operations, the necessity to dispose of significant quantities of dredge spoil at the EPA disposal site could be eliminated.

Landscaping schemes, such as that proposed for the east side of Pier J, can incorporate use of vegetation which offers feeding, nesting and resting sites to birds and other wildlife known to inhabit the harbor area. This could perhaps be an element in a plan for mitigation of any habitat loss which could be projected for Master Plan projects.

It should be pointed out, however, that other than the Pier J tanker terminals, the Pier J completion and the dredging operations proposed under this Master Plan, there are no projects which will significantly impact marine organisms or result in significant alteration of habitat availability.

Socio-Cultural Environment

Housing, shopping, recreational and cultural facilities will be affected only indirectly through increased use as a result of the Master Plan.

While no known historical or archaeological site will be affected by the various proposed developments, there is a possibility that unknown sites and/or isolated artifacts could be destroyed due to implementation of an individual project. These losses could be mitigated by employing a qualified professional archaeologist during excavation for large projects; any significant sites encountered could be circumvented and artifacts could be properly removed and preserved.

Disruption of viewsheds due to various project structures can be avoided by judicious design and location of such structures. Further, various landscaping, screening and painting schemes should prove not only to avoid adverse aesthetic impacts but to upgrade the scenic quality and vistas in many areas of the Harbor District.

Traffic and Transportation

The only significantly adverse traffic impact that can be partially attributed to Port related activities is the potential imbalance in future vehicular traffic demands versus available capacities. This condition is not expected to become serious during this Master Plan timeframe, but it could progressively worsen over the long term until the previously mentioned freeway improvements are completed; this is based on the assumption that there will be no change in today's mode of transportation.

The most significant reductions in future traffic impacts in the study area can be obtained through implementation of alternate modes of transportation. Due to the deletions that have been made in the master plan of streets and freeways in the Los Angeles region in recent years, it has become apparent that the almost total reliance on the automobile for transportation cannot continue indefinitely. Future traffic projections based on current travel modes indicate that traffic demands may be as high as 200 percent or more of available street system capacities for many areas in the Los Angeles region. The Port of Long Beach area represents only a small part of this overall regional transportation problem.

Provision of transportation alternatives could reduce future traffic demand/capacity relationships. The possible mitigation measures described below should be viewed in terms of their value in either effecting increased vehicular capacity or reducing traffic demands in the area of concern. Implementation of a realistic combination of some or all of these measures would have a cumulative effect on reducing volume/capacity ratios. The possible mitigation measures are as follows:

1. Encouragement of use of rail transportation for Port-related construction and operational activities.

2. Development of a program of shift staggering for employees in the Long Beach area. A cooperative and coordinated program of shift staggering for the high employment population in this area would reduce the peak hour traffic demands and spread the loads over a longer period of time. This action would make more efficient use of the area street system by reducing the peaking loads and extending the peak period of high traffic activity.
3. Provision of a centralized employee car pool information center in the Port, industrial park, and CBD areas. The number of employees in these areas would justify an effort to establish a computerized data bank containing sufficient origin and destination data to enable employees to readily form car pools.
4. Improvement of the quality of the existing bus service by providing more bus routes, and lowering the fare structures as much as possible. This would require an expansion of the existing bus fleet and increases in subsidies to fund the program, but could be implemented in a reasonably short period of time.
5. Provision of preferential and/or exclusive lanes for buses and other high-occupancy vehicles. The San Bernardino Freeway express bus lanes between the Los Angeles CBD and El Monte are an example of this transportation alternative that is already in operation. Caltrans, the City of Los Angeles, SCRTD, and others are planning more facilities of this type, on both freeways and surface streets, for implementation within a relatively short period of time. The high persons per vehicle occupancy ratios possible with bus transportation could lower total vehicle trip demands. The current vehicular occupancy ratio during peak periods is about 1.1 persons per vehicle which would be equivalent to about 800 person trips per hour per lane at volume levels that would provide a reasonable level of service on the street system. An exclusive bus lane would increase the "people moving" capacity of a surface street lane to as high as 4,000 persons per hour.

EFFECTS FOUND NOT TO BE SIGNIFICANT

The following areas are not discussed in the impact analysis, since they were determined to be unaffected or insignificantly affected by the proposed Master Plan. The reasons for determining insignificant effect are noted in each case.

Topography and Physiography

While the Master Plan includes several projects which involve varying amounts of cutting, dredging and filling, none of these activities will alter the basic land features within the Port. The Pier J completion, involving 50 to 110 acres of fill, is the only significant amount of planned additional land; it will be devoted to primary port uses, to accommodate increased demands of shipping and navigation, and will not adversely affect the physiographic features or drainage patterns of the harbor.

Local Resources

The only known mineral resource within the Port of Long Beach is petroleum. The sites for exploration and development of petroleum are specifically delineated by law. Master Plan implementation in these areas will not take place until oil field depletion occurs or until drill sites are relocated. Armor rock and quarry rock for dikes will be obtained from sources outside the Port of Long Beach. It is planned to obtain all rock from a quarry on Santa Catalina Island which has been producing rock for many years. For the past three years, rock has been quarried and stockpiled because there have been no sales. Enough rock exists in these stockpiles and in working areas of the quarry to provide almost all materials needed for construction proposed by the Master Plan.

Land Use

As previously noted, the Master Plan is based on the Port's need for flexibility as regards land use planning in order to effectively adjust to continually changing cargo trends and demands. The Port must carry out its responsibility to the market areas which it serves, as well as meet the Coastal Act mandates of locating hazardous operations away from populated areas, encouraging multi-company use of facilities and providing for recreation and public

access insofar as practical. Attainment of all these goals obviously requires careful analysis and consideration of a multitude of factors.

Any land use impacts resulting from the Master Plan can be predicted to be beneficial, since the framework in which the Port is operating dictates that all available land continually be put to its most efficient and best use.

Public Service Systems

Implementation of the Master Plan will have only minor effects on public service systems. These systems provide public safety and health, human (e.g., schools, parks), and utility services. Minor effects will occur primarily as a result of increased costs associated with additional service demands. These costs will be offset by further tax revenues. Overall, increased public revenues from Master Plan projects will be far greater than any increased costs.

There will be minor effects on the following Public Safety Service Systems: police, fire, building inspection, other permit and regulatory activities, flood control and storm drains.

Effects largely will be in manpower costs. Increased manpower will be needed to carry out duties involving building inspection, permit and regulatory activities, and police services. Relocating the two fireboat stations to more strategic sites will result in shortened response times and improved overall protection for the Harbor District.

Minor impacts on public health service systems will be felt. The following systems will be affected: public health, emergency medical services, health care facilities, sanitary sewer system and solid waste management. The effects include increased staffing, additional flows to the Sanitation District's sewer line, and additional waste for local sanitary land fills (which currently are near maximum capacity).

Little impact is anticipated on local utility systems -- electricity, natural gas, fresh water, and telephone. In general, anticipated project consumption levels will be low compared with service area demands. Local utility officials foresee no measurable impact on future supply capabilities as a result of the Plan.

Human services include social welfare, libraries, parks and recreation, and schools. Only minor impacts will occur as a result of project implementation. The project will create a number of new jobs. Some of these jobs may be filled by those

on public assistance, possibly reducing welfare roles. Additional areas will be developed in the Port to augment local recreational resources.

An increased number of school-age children are anticipated because of the project. Consequently, there will be minor increases in public education costs. Since the school system operates below capacity now, no new facility costs are expected as a result of implementing the Master Plan.

Economics

The overall economic impact due to implementation of the Master Plan will be increases in public revenues and employment in Southern California and in Long Beach. Increases will be due to permanent changes from expanded port operations and continuing temporary changes from construction efforts made to implement the Master Plan.

Implementation of the Master Plan will lead to an increase in both direct and indirect employment; most of the increases will occur in Long Beach.

Public fiscal effects will show a net increase after subtracting additional municipal costs and bond payments by the Port to finance construction. Most of the net revenue increases will accrue to the Long Beach area, specifically to four jurisdictions: the Harbor Department, the City of Long Beach, the Long Beach Unified School District and the Long Beach Community College District. Detailed economic analyses will be accomplished in each individual project EIR.

ALTERNATIVES TO THE MASTER PLAN

The alternatives to the Master Plan discussed in this section are based on alternative planning methodology rather than alternative project development. This approach is based on the fact that there is an infinite number of possible development scenarios; further, the Port of Long Beach desires to achieve an appropriate balance of land use in its future development and thus is interested in establishing a planning philosophy rather than merely producing a series of possible alternative "lists" of projects. In defining and analyzing various alternative planning methods, the Port has:

- evaluated the functional advantages and disadvantages of each methodology
- evolved a planning approach to achieve a balanced "highest and best use" of available and planned land area
- conformed with Coastal Act requirements, in particular the mandates of Chapter 8

The alternative planning methods considered by the Port of Long Beach are:

- Response development (the no planning, no Master Plan alternative)
- Recreation-oriented planning
- Commerce-oriented planning
- Commodity Zone Planning
- San Pedro Bay Unified Port Planning
- Land Use District Planning

Response Development

As a possible alternative to the Master Plan, the Harbor Department could develop, repair, and maintain facilities only in response to specific demands, needs, or potential projects. Response development could result in several problems related to land use commitments, cargo handling capabilities, and inadequate deep water berthing facilities.

If the Port of Long Beach were to function in a response development mode, various planning elements such as environmental protection,

land use and transportation access, and long range port commerce would not be priority considerations. In a response development mode, economics and engineering feasibility are the primary considerations; thus, prime land areas would be quickly developed. These developments might be disjointed in commercial nature and land use demands and serve only a specific short-range interest. Further, under this type of development, standard Port maintenance activities such as channel dredging and modernization of berth facilities would be scheduled on an "as-needed" basis.

The need for additional and modernized port facilities depends on estimates for future cargo tonnage and types, and the number and type of vessels calling at the port. Forecasting potential demand and changes in demand is needed in order to maintain the effectiveness of a port.

Forecasts of the number and type of berths needed to handle commercial volumes of various cargo types are not considered under response development. The forecasts normally include analysis of berth utilization/occupancy and backland requirements, two critical elements for planning a commercially competitive port. These parameters define the berth requirements and the land area necessary to handle a prescribed amount of cargo each year. Space has to be provided for cargo marshalling as well as for land transport shipping facilities. Backland requirements differ for break bulk, container, dry bulk, petroleum, unitized (neobulk), and liquid-bulk cargo berths. Maintenance of an updated analysis of cargo forecasts, berth utilization, ship arrivals, and backland requirements is crucial for insuring the viability of a commercial port. Response development does not provide for this analysis and could leave the Port of Long Beach vulnerable to obsolescence.

The potential effects of response development are generally adverse in nature. With a "no planning" philosophy, the Port of Long Beach could become commercially non-competitive. The Port would also be subject to potential violation of various federal, state and local regulations. This may include careful scrutiny and review from associated jurisdictional bodies within the federal and state governments.

The long range adverse land use and environmental impacts associated with response development could be severe. For example, development does not entail long range planning for air pollution control, hydraulic characteristics of the harbor, or seismic safety. Thus, while requirements of regulatory agencies would have to be met for each individual facility, over the long term the optimum arrangement or combination of facilities might not be achieved in terms of location, configuration, design, and/or pollution control technology.

Adverse impacts on public safety systems would be minor, as would effects on public health services; demand for these services is not likely to increase significantly. However, public utilities may experience some adverse effects relating to "non-forecast" of

demand and service needs. In a response development mode, forecasts of utility needs in terms of service type, level of demand, and accessibility are not available. Therefore, the public utility services such as electricity, natural gas, fresh water, and telephone may experience some adverse effects. Although the utility service systems may find no difficulty with respect to future supply capabilities, the lack of planned development would most likely result in adverse impacts for service and accessibility.

Generally, development of any kind, planned or unplanned, will result in some economic benefit. Economic impacts are normally characterized by public revenues, employment levels, and business activity. Although the Port and local area would experience some economic benefits from response development, consideration should be given to the level of commercial competition necessary for the Port to remain a long-term profitable entity. Response development could result in a "net" forfeit of economic activity levels.

Recreation-Oriented Planning

Under this planning alternative, the Port of Long Beach would direct future development primarily toward public recreation and entertainment facilities, such as fishing piers, RV parks, hotel/shopping complexes, marine-oriented amusement parks, additional marinas and boat launching facilities, etc. The commercial nature of the Port would be de-emphasized; existing facilities would be maintained, however expansion would not be particularly encouraged, and various operations might be expected to eventually "phase out" and relocate. New commercial operations would be brought into the Port only if a client made a specific request to locate in this Port and could demonstrate economic feasibility and compatibility with the recreational character being encouraged.

The Coastal Act, in Chapter 3 Article 3, clearly encourages the provision of recreational facilities in coastal areas. Public demand for such facilities is high and will undoubtedly continue to increase in the future. However, the commercial character of the Port of Long Beach is well established and the Port has a responsibility to the market area it serves; indeed, this is a national responsibility since the Port will serve as an "energy window" for the increasing U.S. demand for petroleum and other energy sources. Moreover, the Act specifies the priority of coastal-dependent development (30255, 30260) and Chapter 8 notes that "...the commercial port districts within the State of California are well established, and for many years such areas have been devoted to transportation and commercial, industrial and manufacturing uses.... Existing ports shall be encouraged to modernize and construct necessary facilities within their boundaries in order to minimize or eliminate the necessity for future dredging and filling to create new ports in new areas of the state." (30701(b)).

Thus, this particular planning alternative is not only functionally and economically impractical, but in conflict with key provisions of the Coastal Act.

Commerce-Oriented Planning

This is basically the inverse of the previous alternative, wherein the Port would be planned so as to exclude recreation/entertainment facilities. Public access beyond present levels would be discouraged. Existing hotels, marinas, etc., would be maintained, but there would be no provision for expansion or future development of such facilities. Further, there would be no attempt to "tone down" the industrial character of the Port, i.e., to improve the aesthetic quality by landscaping, screening etc. Obviously, the functional objectives of the Port would be achieved, but it would be at the expense of other "public interests".

This alternative is not realistic, since the Port recognizes that the area of the Harbor District is a valuable coastal resource and can offer recreational, entertainment and educational benefits which are compatible with the basic industrial/commercial character which exists in the Port. Rather than proceed on a course of strictly industrial or strictly recreational planning, an appropriate balance of land uses is the goal; where reasonable, practical and safe, public access and recreational facilities can be provided at feasible locations in the Harbor District so that the maximum number of people derive the maximum level of benefit from the Port and the coastal area. This premise is certainly in keeping with Coastal Act philosophy.

Commodity Zone Planning

Generally, demand for specific commodities (import and/or export) dictates the development of specific port facilities to handle those commodities. Zone planning by cargo type would involve dividing the Harbor District into several "cargo zones", i.e., areas that would be devoted to handling only certain types of cargo. The multitude of products handled in the Port can be grouped in three basic categories: general cargo, dry bulk and liquid bulk/petroleum. Each specific cargo within each category generates requirements for berthing facilities, onshore equipment, storage/marshalling areas, backland area, and intermodal transfer systems.

This method of planning may appear to be sound, since "like" cargoes would be restricted to the same general area, and many

of the Port's objectives could be achieved, e.g., isolation of hazardous operations, appropriate berth/water depth arrangement, multi-company use of facilities, etc. However, the uncertainty of long term supply/demand for various commodities, changing national policy (trade, energy, etc.) and fast-moving technology mean that the Port must maintain flexibility in use of land, in order to maximize use of existing land and to assure that areas which become available in the future are most efficiently utilized so as to minimize the necessity for creating new land by filling, etc. For example, the requirement for backland area for various operations may lead to conversion of petroleum production areas, as production decreases and is eventually phased out. Commitment of these areas, over the long term, to specific uses is unrealistic, since the relative cargo volumes, modes of transportation, methods of storage, etc., could radically change at any point in time. Further, certain operations lend themselves well to reconstruction or modernization, while others are more appropriately demolished and rebuilt on a totally new site, possibly on a larger or smaller scale. These factors make cargo zoning difficult and impractical. Flexibility in land use makes it possible to have the best current use of available land, water area, and transportation systems, and to continually plan an appropriate mix of future uses. This flexibility includes development of buffer zones and public use areas, setting aside of deep water areas of the Port for use by deep-draft petroleum tankers, minimization of travel distances and associated queuing problems in the harbor for vessel traffic, and maximization of the distance between hazardous cargo handling areas and local residential and commercial populations.

San Pedro Bay Unified Port Planning

Planning on the basis of a single port in San Pedro Bay would require the unification of the Port of Los Angeles and the Port of Long Beach. Under this planning alternative, one administrative body would plan and control the commercial development of San Pedro Bay. There are several obstacles to achieving this alternative. The "change-over" for development of accurate trade and commodity type forecasts for a single port would be extremely difficult due to the distinctively different administrative methods and jurisdictions. Most importantly, the Ports are located within two distinctly different political boundaries.

The development of San Pedro Bay as a single port would further require: relocation of some commodity facilities for both ports in order to properly consolidate certain operations; standardization of administrative procedures, ordinances and cargo handling procedures; standardization of tenant lease agreements and other administrative responsibilities; and redistribution of revenues.

Land use alteration required to redevelop both harbors into a single port is significant, although potentially beneficial. Land use patterns would be disrupted intermittently during the "redevelopment" period. The potential for short term ineffective land use commitments increases with this planning mode. Although these commitments would be transient until redevelopment is completed, it may impact the commercial efficiency of the area. The revenue structure, both in terms of collection and distribution varies within each port. Although the San Pedro Bay area would most likely continue to add to public revenues, the magnitude and distribution would most certainly shift. The City of Long Beach and both Los Angeles City and County would be affected. Although public revenues would continue to be generated, the redistribution would no doubt have a disturbing effect on economic activity for all jurisdictions concerned. Further, during the merging process, both ports might experience a reduction or "slowing down" of commercial trade, due to certain construction activities associated with the redevelopment.

Once the unification of the ports was physically and organizationally accomplished, some obvious benefits could be realized: consolidation/deletion of "redundant" activities, more focused planning of energy facilities, increased efficiency in overall San Pedro Bay traffic movements, general efficiency through standardized operational and administrative procedures, and perhaps a reduction in environmental impact due to reduced necessity for cutting/dredging/filling activities.

It would appear, however, that the adverse impacts of the unification process are substantial enough to frustrate any serious proposal to accomplish the merger. Further, the political obstacles probably can be considered insurmountable.

Land Use District Planning

This method of planning is the one selected by the Port, since it attempts to qualitatively analyze several social, economic and environmental parameters, including:

- land available for acquisition and conversion from oil production and existing open water areas
- land costs
- maximization of existing facilities
- improvement and further development of intermodal transportation systems
- demand for facilities

- lease agreements
- maintenance and enhancement of air and water quality
- demand for recreational and commercial activities

Based upon the analysis, each of the land use districts can be flexibly planned so that the optimum current and future use of all available land is assured. As noted earlier in this document, the Port can accurately project facilities up to approximately five years. Specific plans cannot be formulated for a longer term with any degree of accuracy because the long term commodity flow structure, the supply and demand trends and resource management policies and objectives are necessarily ambiguous. Thus, several planning options for each district are discussed for the long term. All facets of these options are interchangeable and no option necessarily represents a total or complete plan. Further, not all and perhaps not any of the long range options need be exercised in the future. Industry, environmental and economic demands will determine whether these facilities are built. Thus, it is felt that the use of planning districts, with short range focused plans and long range options yields the best and most meaningful planning tool to assure that the Port remains modern, viable, competitive and operated in the public's best interest. Further, it should be noted that this method of planning actually allows the Port to utilize some of the positive qualities from all of the alternatives discussed above, and to develop a reasonable, balanced approach.

RELATIONSHIP BETWEEN SHORT TERM USES/LONG TERM PRODUCTIVITY

Construction activities associated with the projects set forth in the Master Plan will generate only short term impacts. There are, however, some cumulative and long-term impacts which can be identified as possibly having an adverse effect on the state of the environment, should the several projects be implemented.

Notwithstanding proper design, foundation preparation and use of effective engineering techniques, there is a level of risk associated with all structures located in Southern California. Should an earthquake of sufficient magnitude and duration occur, albeit of extremely low probability, there is the possibility of foundation soil and/or structural failure for any of the existing or proposed projects in the Port. Depending upon the exact circumstances of the event, significant losses of life and/or property could occur.

Air pollution will result from construction of all of the proposed projects; although the incremental impact of each project will be small, it will be contributing to the total pollution of the South Coast Air Basin (SCAB), in which the state and federal standards already are frequently exceeded. Those projects which will generate operational air quality impacts in excess of New Source Review limits will be required to "trade off" pollutants from other sources in order to demonstrate a net benefit to the air quality of the SCAB. Air quality in the immediate vicinity of the Port, however, could be degraded, particularly in terms of adverse impacts of sulfates and particulate matter, depending upon the precise location of trade-off sources.

Dredging activities can be expected to have relatively short-lived adverse effects on water quality; however, if dredging activities for different projects were conducted in a consecutive timeframe, adverse impacts could persist for significantly long periods of time and produce lasting effects (e.g., depletion of plankton and invertebrate populations) with concomitant long recovery periods.

Dredge/fill operations have the potential of eliminating certain types of habitat and creating new ones (although not necessarily the same type). Thus, over the long term, a change in the "habitat inventory" of the Port could change. This may or may not be an adverse effect; the actual impact of the resultant change is a subjective judgement, as is the mitigation of that impact.

No significant population growth will result from implementation of the Master Plan. However, there may over the long term be increases in traffic on certain streets which will necessitate modification and improvement to accommodate volume demand.

There are several reasons to support the position that the Port is justified in proceeding with a Master Plan now, rather than reserving some option for the future:

1. The Master Plan is required by law.
2. Requests for new berths, for additions to existing berth areas and for redevelopment of outmoded facilities have been received from present and potential tenants. Planning and CEQA action on these requests awaits adoption of a Master Plan and certification by the Coastal Commission.
3. The Board of Harbor Commissioners is required, by terms of State laws and the city charter of the City of Long Beach, to operate a harbor for the accommodation and promotion of commerce, navigation, education and recreation.
4. The Master Plan will provide a framework for future, more detailed planning.

Delays in the proposed action would thus violate the law, inhibit improvement of existing port operations, delay planning for new projects and render the Harbor Commissioners derelict in their obligations to plan for accommodating the requirements of commerce, shipping, and navigation, education and recreation.

IRREVERSIBLE ENVIRONMENTAL CHANGES

Given that improved air pollution control equipments and/or strategies could reduce projected pollutant levels at some time in the future, air quality impacts cannot be considered irreversible.

Projects designed to supply the consumer demand for non-renewable resources, e.g., petroleum terminals, certain bulk facilities etc., contribute to the irreversible consumption of those resources.

The Pier J completion will create 50 to 110 acres of land and cause the permanent loss of the affected benthic and water column area. In terms of total area in the Harbor District, this is not a particularly significant impact, especially in view of the fact that new rocky subtidal/intertidal habitat will result due to dike placement.

Project-associated disasters such as major fires, oil spills etc., are considered unlikely, due to safety measures incorporated in the individual projects. However, should such a disaster occur, the impacts could be very serious, including extensive property damage and loss of human life. The impacts to the biota of the harbor could be severe and of long duration, e.g., in the event of a major oil spill, but are not considered irreversible adverse effects.

The commitment of the Queensway Bay District could be classed as a delegation of land to permanent use for recreation, entertainment etc. However, the Port considers this an appropriate use for this particular strip of land; it is in character with the general Queensway Bay area, does not conflict with other Port land uses, and serves as a buffer in terms of aesthetics, etc., between the City and the Port area.

GROWTH-INDUCING IMPACT

Projects in the Port are implemented in response to specific client demands, which in turn are initiated in response to consumer demand. In general, then, the projects covered by the Master Plan are "growth-supporting" rather than growth-inducing. There will be minor increases in population, however, projected increases are not significant on a City-wide or region-wide basis. There may be temporary population "surges" during peak construction periods which place increased demand on roadways and the various amenities in the area. The Master Plan projects also are expected to add demand for public services and utilities leading to minor expansion in personnel, etc. These demands are expected to be more than offset, however, by increases in public revenues attributable to the various projects.

EIR REFERENCES

- Allan Hancock Foundation. 1975. Environmental Investigations and Analyses for Los Angeles-Long Beach Harbors, A report to the U.S. Army Corps of Engineers. Contract No. DAWCD 9-73-0112.
- Barrows, A.G. 1974. A Review of the Geology and Earthquake History of the Newport-Inglewood Zone, Southern California: California Division of Mines and Geology, Special Report, in Press. (Environmental Impact Report)
- Binder, R.W. 1952. Engineering Aspects of the 1933 Long Beach Earthquake, Proceedings of the Symposium on Earthquake and Blast Effects on Structures. (Environmental Impact Report)
- California, State of, Los Angeles Regional Water Quality Control Board. 1969. Review of Information Pertinent to Los Angeles-Long Beach Harbors and Dominguez Channel. Staff Report to the Los Angeles Regional Water Quality Control Board.
- Dames & Moore. 1977. Report - Detailed Geotechnical Studies, Proposed crude oil tank farm, Pier J, Port of Long Beach, Long Beach, California for the Standard Oil Company (Ohio).
- EQA/MBC (Environmental Quality Analysts/Marine Biological Consultants). 1975. Marine monitoring studies, Long Beach Generating Station. Prepared for the Southern California Edison Company. Annual Report 1974. Volumes I and II.
- Jones, J.H. 1971. General Circulation and Water Characteristics in the Southern California Bight. Southern California Coastal Water Reservoir Project. (Thermal Effects)
- Lee, J.J., and J.A. Walther. 1974. Wave Energy Permeation of San Pedro Breakwater. Proceedings of 6th Offshore Technology Conference, OTC 2124, May 1974.
- Long Beach City Planning Department. June 1975. Unpublished Working Document Re Data on Population, Employment and Housing for 1970, 1974, 1990 and Comparisons with Similar SCAG Estimates.
- Long Beach Harbor Consultants. 1976. Environmental and Geotechnical Sampling Program. Prepared for the Port of Long Beach, 1976. Volumes I-III.
- Marine Biological Consultants. 1975a. Preliminary Report on Long Beach Harbor.
- _____. 1975b. Environment and Soil Sampling Program for the Port of Long Beach. Interim Report No. 3.

- McAnally, W.H., Jr. 1975. Los Angeles and Long Beach Harbors, Model Study, Report 5, Tidal Verification and Base Circulation Tests. U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi, September 1975.
- Port of Long Beach. 1976a. Environmental Impact Report, Proposed General Plan. Volumes I and II. Environmental Affairs Division.
- _____. 1976b. Master Environmental Setting. Volumes I and II. Environmental Affairs Division.
- _____. 1977a. Pier D Bulkloading Facility Modernization EIR, and Technical Appendix. Environmental Affairs Division.
- _____. 1977b. SOHIO West Coast to Mid-Continent Pipeline Project, EIR. Volumes 1 through 5. (With California Public Utilities Commission).
- Reish, D.J. 1959. An Ecological Study of Pollution in Los Angeles-Long Beach Harbor. California. Allan Hancock Foundation Publication, Occasional Paper Number 22.
- SCAPCD (Southern California Air Pollution Control District). 1975. Emissions inventory report to the Board. Nov. 7, 1975.
- Soule, D.F. 1974. Thermal Effects and San Pedro Bay. In: Marine Studies of San Pedro Bay, Part 3. Allan Hancock Foundation and Sea Grant Program, University of Southern California. p. 1-20. (Los Angeles-Long Beach).
- Stephens, J.S., Jr., C. Terry, S. Subber, and M.J. Allen. 1974. Abundance, Distribution, Seasonality, and Productivity of the Fish Populations in Los Angeles Harbor, 1972-73. In: Marine Studies of San Pedro Bay, California, Part 4. Allan Hancock Foundation and Sea Grant Program, University of Southern California. p. 1-42 (Los Angeles-Long Beach).
- U.S. EPA (Environmental Protection Agency). 1973. Compilation of Air Pollutant Emission Factors (second edition). April, 1973.
- Wilson, B.W., Y. Jen, J.A. Hendrickson, and H. Soot, 1968. Wave and Surge Action Study for Los Angeles-Long Beach Harbors. Unpublished Technical Report, Los Angeles District U.S. Army Corps of Engineers, Los Angeles, California.
- Wood, Harry O. and others. 1934. Destructive and Near-destructive Earthquakes in California and Western Nevada, 1769-1933, U.S. Department of Commerce, Coast and Geodetic Survey, Washington, D.C., Special Publication No. 191. (Environmental Impact Report).

APPENDIX A

RISK MANAGEMENT PLAN

PRELIMINARY

RISK MANAGEMENT PLAN

A Phase I Policy Formation

Progress Report

Prepared as a Supplement to the Port Master Plan
and in conjunction with a Grant Application to
the Office of Coastal Zone Management, National
Oceanic and Atmospheric Administration, under
the provisions of the Federal Coastal Zone
Management Act of 1972, as amended.

January, 1978

PORT OF LONG BEACH, CALIFORNIA

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RISK MANAGEMENT PLAN

(A Phase I Policy Formation Progress Report)

INTRODUCTION

Scope of Risk Management Plan

The Risk Management Plan (RMP) described herein is intended as a policy element of the Port Master Plan to facilitate decision makers in management of Port development consistent with the intent of the Coastal Act. The Harbor Department is pursuing an extended program for the drafting and implementation of a comprehensive risk management plan for the Port of Long Beach through a grant application from the Coastal Energy Impact Program (CEIP) under the coordination of the California Coastal Commission. The purpose of this program is to develop a policy and program instrument to facilitate the effective control and management of specified potential hazards in the Port and vicinity.

The RMP will establish a set of goals and objectives with respect to significant hazards, addressing the needs for information, planning, management and enforcement. Potential hazards will be identified, assessed in terms of past experience and likelihood of occurrence, and evaluated in terms of legal liability where applicable. The current status of Port resources will be addressed in terms of their qualitative and quantitative values to establish an index for future changes of value.

Risk management strategies will be developed both from the standpoint of prevention and emergency response operations. The text on prevention will treat interagency cooperation, regulatory authority, powers and duties, establishment of findings, rules and regulations, hearing and permit procedures, inspection, personnel training, contingency planning, enforcement, fees and penalties, program fundings, insurance and liability, abatement and control, and emergency simulation.

The text on emergency response will treat delineation of authority and responsibilities, response organization, designation of response centers, control and inventory of resources, logistics of equipment and personnel, communication and records, transportation, security, maintenance of operations, training and simulation, recovery operations, contingency funding, interagency liaison, and legal and legislative support.

The RMP as proposed will be developed in three phases. The first phase is subdivided into policy formulation and information. The products of policy formulation are the focus of the present

text and include a clarification of the Coastal Act, mandates for risk management, an operational definition of risk management relevant to the Port, a background study of existing Port, City, State and Federal risk management and emergency plans, and an enumeration of goals, objectives and recommendations. The information segment of the first phase will seek to provide readily available information on risk management, to facilitate notification, to identify existing authorities, responsibilities, interfaces and organizations or agencies with regard to risk management.

The second phase will involve plan development. This will include the identification and establishment of priorities for prevention and response, the development of abatement, control and notification procedures, the development of reliable lines of communication between the Harbor Department, Port operatives and other agencies with respect to prevention and emergency response, the development of criteria and standards applicable to permit procedures, the identification and inventory of resource capabilities for and commitments to reduction and mitigation of risks (i.e., personnel, equipment, facilities, materials, supplies, capacity and availability), the projection of new programs and projects which may be necessary to reduce risks and facilitate risk management.

The third phase involves legislation and implementation. This phase will include the drafting of rules, regulations and procedures, where existing ones are not sufficient, to prevent and minimize loss from potential hazards, to facilitate assessment of and recovery from damages, and to strengthen the enforcement of prevention and contingency. The identification of the means for funding various risk management programs will also be undertaken in this phase.

Definition of Risk Management

The definition of risk management can be derived in a number of ways depending on the source and the application. The general denotative definition of risk management may be derived from Webster's Dictionary by combining applicable definitions of the concepts of "risk" and "management". "Risk" is defined as a dangerous element or factor; a chance of loss or the perils to the subject matter of an insurance contract; the degree of probability of such loss; a person or thing that is a specified hazard to an insurer. "Management" is defined as the art of managing, controlling or direction; judicious uses of means to accomplish an end. Thus, "risk management" may be denotatively defined as the judicious uses of means for managing, controlling or directing the probability of loss due to specified hazards.

The term "risk management" has been used commonly in the insurance field to connote analysis, evaluation, abatement, transfer of

liabilities and accounting activities for the purpose of determining sources of risk, evaluating the impacts on individuals and organizations, and establishing adequate compensation for the loss of tangible and intangible assets. Due to the extensive use of the term in insurance, the use of the term in its broader denotative context is easily misunderstood.

The definition of risk management sought for the purpose of this text, however, is neither so general as to encompass management of any potential hazard, as inferred by the denotative definition above, nor so specific as to concern itself exclusively with the establishment of compensation for loss through insurance, as inferred by the connotative definition above. Rather, an "operational" definition is required which addresses the particular concerns of the proposed Port Master Plan. This definition of risk management is as follows:

The effective management, control and direction of specified potential hazards with respect to existing and proposed development in the Port and vicinity with the aim of preventing and minimizing potential loss, injury or damage to persons, property, natural or economic resources. These specified hazards include but are not restricted to the following: hazardous substances; crude oil, gas petroleum or toxicant spills; fill, diking and dredging hazards; geologic, subsidence, seismic, erosion and soil hazards; vessel hazards; structural instability; air pollution; water pollution; transportation hazards; waste hazards; pilferage; rodents and insects; public disturbances; war and guerilla actions; equipment, operational and occupational hazards.

The latter definition is derived from the concerns for safety expressed in the Coastal Act, the City Charter, the City General Plan and Element, the Long Beach Emergency Plan, the Port Emergency Plan, and the Port Tariff Number 3.

BACKGROUND

Coastal Act Policies on Risk Management

The Coastal Act of 1976 established among its primary findings and declarations the need to promote public safety, health, and welfare, and to protect public and private property, wildlife, marine fisheries, and other ocean resources, and the natural environment (Section 30001(c)). The Act further found and declared that although electrical generating facilities, refineries, and coastal-dependent developments, including ports and commercial fishing facilities, offshore petroleum and gas development, and liquefied natural gas facilities may have significant adverse effects on coastal resources or access, such developments within the coastal zone may be necessary to ensure that inland as well as coastal resources are preserved and that orderly economic development proceeds within the state (Section 30001.2). It also declared that to achieve maximum local response, it is necessary to rely heavily on local government and local land use planning procedures and enforcement (Section 30003(a)).

Overall coastal resources planning and management policies were established in Chapter 3 of the Act which respond in greater detail to particular safety and protection needs. These policies address such issues as: military security (Section 30213); water quality and public health (Section 30231); protection against spillage of crude oil, gas petroleum products, or other hazardous substances (Section 30232); mitigation of adverse impacts of diking, filling or dredging in open coastal waters for ports, energy and coastal-dependent industrial facilities (Section 30233); protection of structures and beaches from erosion (Section 30235); location of hazardous industrial development away from existing developed areas (Section 30250); minimizing risks to life, property and structures from erosion, geologic instability, flood and fire hazards, and structural or site instability (Section 30253); satisfying local, state and federal air pollution control requirements (Section 30253); minimizing the volume of oil spilled and risks of vessel collision, providing for oil spill contingencies, and eliminating risks to life from liquid natural gas facilities (Section 30261); minimizing the geologic, visual quality, subsidence and other environmental risks from new oil and gas facilities (Section 30262); minimizing the environmental damage, public hazards, seismic hazards, air pollution and impacts on surrounding property from new or expanded refineries or petrochemical facilities (Section 30263).

Policies on safety and protection of particular significance to ports are further developed in Chapter 8 of the Coastal Act. Relevant issues which are addressed in this Chapter include the following: diking, filling or dredging for safety and the potential impacts of these activities with respect to water pollution, natural resources, navigational safety, property, and public safety, geologic and soil hazards, flood and storm hazards (Sections 30705 and 30708); minimizing the volume of oil spilled and the risks of vessel collisions, and providing effective oil spill containment and recovery systems (Section 30707); and minimizing the substantial adverse environmental impacts and potential vessel traffic conflicts due to development (Section 30708).

The Coastal Act also amends Section 31342.5 of the Water Code with respect to certain safety and protection measures. Toxic and hard-to-treat substances are required to be pretreated at the source to facilitate effective and economic treatment not otherwise available at municipal treatment plants. New or expanded power plants or other industrial installations using sea water for cooling, heating or industrial processing are required to minimize the intake and mortality of all forms of marine life. Thermal impacts of water discharges into coastal wetlands or areas of special biological importance are required to not significantly alter the overall ecological balance of the receiving area. The use of reclaimed water is encouraged to minimize the use of fresh water consumption.

In certifying the Port Master Plan the California Coastal Commission must find that portions thereof conform to the policies of Chapter 8 and that appealable projects as noted in Section 30715 are in conformity with all the policies of Chapter 3 of the Coastal Act. Thus it is essential to incorporate the foregoing safety and protection findings, declarations and policies in the Port Master Plan. Furthermore, the staff of the State Coastal Commission has suggested that the Port of Long Beach should address the aspect of risk management in its Master Plan, i.e., the means for judiciously managing, controlling and directing proposed developments in order to prevent, insure and protect against, and minimize the risks of loss or significant adverse impact due to potential hazards within and surrounding the Port as identified in the Coastal Act.

Federal, State, Regional and Local Authorities

The management of risks, public safety, health and welfare, and emergencies has been the pursuit of various levels of government in response to the growing and changing needs as reflected in legislative mandates. Numerous federal, state, regional and City agencies maintain authority and responsi-

bilities for management of specific types of risks affecting the Port. Among federal agencies exercising risk management authority on particular Port developments and operations are the Environmental Protection Agency (EPA), Corps of Engineers, the Maritime Administration, Fish and Wildlife Service, Bureau of Land Management, U.S. Customs Service, Food and Drug Administration, the Federal Aeronautics Administration (FAA), the Federal Commerce Commission (FCC), Coast Guard, and the Federal Energy Administration (FEA). The Coast Guard and the Army Corps of Engineers are among the federal agencies charged with domestic emergency response authority which have developed and maintained emergency contingency plans for military actions, flood, oil spills, vessel collisions, nuclear disaster, earthquake and other major naturally and artificially caused emergencies.

Among state agencies exercising risk management authority on particular Port developments and operations are the Coastal Commission, Energy Resources Conservation and Development Commission, Water Resources Control Board, Air Resources Board, Department of Fish and Game, Department of Navigation and Ocean Development, Division of Mines and Geology, Division of Oil and Gas, State Lands Commission, Division of Industrial Safety, Governor's Office of Planning and Research, Public Utilities Commission, State Office of Emergency Preparedness, Department of Transportation, and the Solid Waste Management Board. The State Office of Emergency Preparedness, formerly called the California Disaster Office has developed and maintained an "Emergency Resources Management Plan" for civil defense in the event of attack. The Office of the Governor in 1974 certified the "State Oil Spill Contingency Plan" which was to be followed up with a separate hazardous materials contingency plan. The Department of Fish and Game has prepared the "Oil and Hazardous Materials Contingency Plan" of 1974 with the aim of protecting living resources from oil and hazardous material impacts.

On a regional level agencies such as the Southern California Air Quality Management District (SCAQMD), Regional Water Quality Control Board, Los Angeles County Flood Control District, County Road Department, County Department of Public Facilities and Transportation, and County Department of Sanitation exercise some risk management authority over particular Port-related facilities and operations. The SCAQMD reviews permits for conformance with air quality rules and regulations. They have also established a multi-episode alert program whereby particular industries, businesses, and organizations are required to put into effect plans for reducing and eliminating levels of air pollution emission by cutbacks or suspensions of operations, car pooling, and/or other specified means. Los Angeles County is actively pursuing the development of an oil spill contingency plan and coastal energy plan under the Coastal Energy Impact Program. Los Angeles County and Cities within its jurisdiction have been required to prepare emergency operation plans which derive their authorities from Public Law 81-920, as amended, California Emergency Services Act, California Mutual Aid

Agreement, and California Emergency Resources Management Plan. County emergency operations are governed by the County Disaster and Civil Defense Ordinance, County Charter, County Administrative Code, and Orders and Administrative instructions of the Board of Supervisors.

City Risk Management Authority

The City of Long Beach has pursued risk management activities and plans as required by state law and mandated by the City Charter and the Municipal Code. The following text discusses some of the more significant activities and plans of City agencies in this regard.

Public Safety Element

The City Council and the City Planning Commission in 1975 adopted the Public Safety Element as part of the Long Beach General Plan as mandated by California Government Code Section 65302.1. This document identified and discussed significant public safety issues relevant to the General Plan including fire protection, geologic hazards, crime prevention, utility related hazards, industrial and transportation hazards, and disaster operations. The intent of this discussion was to incorporate public safety considerations into the overall planning process, to suggest methods for maximizing public safety, to recommend means and measures to reduce probabilities of loss resulting from various hazards, to increase the sense of security and well-being of citizens through public information, and to assist public safety officials.

Management, development, protection and remedial action goals are enumerated in the document and it is pointed out that these have been formulated to be accessible to alteration, update, deletion, or addition in response to changing circumstances within the City. Risk management is defined in terms of division of responsibility, functional definitions, and a survey of acceptable and unacceptable risks.

Public safety responsibilities are subdivided into four organizational groups as follows:

1. Planning and preventative groups.
2. Action-oriented groups (i.e., handling the immediate crisis).
3. Resource groups (i.e., assisting immediate crisis).
4. Recovery groups (i.e., administrative assistance with grants, aid, programs, etc.).

Risk management activities in the City are defined in the document as encompassing a set of eight functions which expand upon the original application, i.e., the evaluation of insurance needs and programs. These functions are as follows:

- Identifying hazards with a significant potential to create large financial losses;
- Prioritizing hazards as to potential loss, extent of risk, and remedial costs to reduce the hazards;
- Estimating economic effects of predictable losses;
- Establishing insurance needs in view of probable loss;
- Designing insurance coverage that meets the particular needs of the City;
- Continual risk re-evaluation based upon new or changing exposures to employees or the general public;
- Coordinating safety activities with safety personnel working in the private sector (i.e., work closely with harbor and airport safety experts to assure safe operations on the ground as well as reducing potential risk to nearby residents);
- Establishing mechanisms to accumulate funds to pay losses.

In order to provide a qualitative evaluation at the policy stage of acceptable and unacceptable risks, the City prepared a list of thirty-two potential risks and surveyed the opinions of 48 separate City departments and private organizations with some expertise and association in matters of public safety. The result is not a factual analysis of the level of risk, but an authoritative subjective evaluation of the significance of potential risks to public safety.

The Public Safety Element presents immediate action and long term recommendations for improvement of risk management and public safety. The immediate action recommendations include the following: bringing old buildings up to code, attaining a Class I fire rating, relocating fire stations for efficiency, undergrounding of power lines and transformers, equipping freeways with call boxes, establishing an emergency telephone system, and establishing a risk management program. Long term recommendations include the following: replacement of unsafe structures with new developments, planning for lower density, providing safe and adequate access, attracting less hazardous industries, enforcement of seismic codes, providing for senior citizens and handicapped, increasing park surveillance, improving street lighting, police participation in the planning process, isolating incompatible land uses.

Long Beach Emergency Plan

The City Council adopted the "Emergency Plan of the City of Long Beach" by Resolution C-21063 effective December 10, 1971. This plan was prepared and is being carried out pursuant to the Long Beach Municipal Code, Article II, Chapter 3, Part 5, as amended.

The Emergency Plan prescribes the organization and operations of the Long Beach Emergency Organization. The Plan specifies the duties and responsibilities of the departments and employees of the City government. In addition, it complements the Los Angeles County Emergency Operations Plan, and it derives authority from various federal, state, and county emergency legislation on which the Municipal Code mandate has been based. The Emergency Organization may be activated fully or partially by proclamation of the President of the United States, the Governor of California, the City Manager, or their authorized representatives. Command of the Organization is vested in the City Manager or his official representative.

The general policy assumption of the Emergency Plan is that emergency or disaster response capabilities must be largely automatic, requiring a dynamic state of readiness. Therefore, City resources shall be applied in the most efficient manner possible to save lives and property, and to preserve the constitutional form of government. Specific policies are promulgated with respect to coordination of services by the Police Department, responsibility for preparation and operations, the role of City employees, the identification of key personnel and their duties, and the roles of volunteers and other persons impressed into service during an emergency.

Although the aim of the overall Plan is to provide for a state of readiness for any major emergency, particular annexes of the Plan respond to given types of hazards. Annex C addresses the management of emergency response in the school system under potential threats from fire, explosion, earthquake, tsunami, bomb threat, falling aircraft, panic, or nuclear attack.

Annex D addresses the alternative locations of the Emergency Operating Center in cases of natural disaster or radioactive fallout. Annex G addresses radiological defense. Annex I addresses shelter from blast, heat, and radiation from nuclear attack. Annex J addresses emergency response services in case of fire, explosion and panic.

Annex L addresses the economic stabilization and management of service and material resource during an emergency. Annex O addresses law enforcement and traffic control services during a calamity of disaster proportions. Annex P addresses public works and engineering services to maintain lifelines for gas, water, electricity, food, petroleum service, transportation,

supply, communication, street and road systems, sanitation and building serviceability. Annex S addresses building and safety services in inspecting structures for safety and habitability under conditions of widespread damage and destruction due to natural or war caused disasters. Annex T addresses oil spill contingency operations in the City at large. Annex V addresses civil disturbances which are either spontaneous, deliberate or both. Annex W addresses war emergency operations.

The role of the Harbor Department is discussed as a unique entity of the Emergency Organization. In the event of war, the mission assigned to the Harbor Department by the federal government preempts any assignment made by the City. The Harbor Department, under these circumstances, will be controlled and directed by the United States Maritime Administration of the Department of Commerce in so far as maritime operations are concerned, although the Port is charged with its own civil defense protective actions and providing assistance to the City in its civil defense activities as much as possible.

The Port is charged with furnishing management and technical staffs for fallout shelters in its facilities, providing radio links with the City Emergency Operations Center (EOC) and mobile radios for emergency communication, and management of the operational radiological reporting network within its jurisdiction. In the event of a natural disaster, the services of the Harbor Department are to be utilized as necessary to help meet the needs of the City.

Risk Management Activities of City Agencies

In addition to the City-wide risk management plans cited above, particular departments and agencies of the City are charged with administration and enforcement of requirements for hazard prevention and emergency response. The Building and Planning Department is responsible for land use planning, zoning administration, environmental analysis, subdivisions, planning, building and safety permit review and approvals, and structural inspections. The Engineering Department reviews projects for structural and traffic safety, water quality, and sewer, storm drain and other substructural adequacy. The Public Services Department plays an active role in maintaining City services such as roadways, lighting, public structures, equipment and properties, and in managing waste disposal services for the City.

The Health Department provides services to protect the health and welfare of the citizens of Long Beach, including disease control, animal control, mosquito abatement, and health services for the disadvantaged. The Water Department manages water distribution and is concerned with maintaining potable water quality. The Aeronautics Department manages airport and aircraft operations in the City and in cooperation with the FAA

coordinates the flight paths, takeoffs, and landings of aircraft utilizing City facilities. The Department of Oil Properties manages oil spill containment, subsidence, and geological risks relative to existing, new and expanded oil and gas facilities in the City, and reviews any City permits for projects in the Alquist-Priolo Seismic Hazard Zone.

Both the Police Department and the Fire Department play major roles in enforcement of public safety measures and emergency response operations. The Police Department has expanded its activities in recent years with respect to crimes from apprehension, suppression, rehabilitation, and security to more active involvement with and application of advanced planning techniques to crime prevention. The Crime Prevention Bureau of the Police Department was established for this purpose.

The services of the Fire Department encompass fire fighting and prevention within the City both on land and in local coastal waters. The Bureau of Fire Prevention of the Fire Department inspects sites, buildings and other facilities throughout the City to determine whether hazards exist, whether codes and regulations are being conformed to, and it initiates enforcement where necessary.

The Fire Department maintains an "Emergency Operating Procedure" which addressed activation, authority, organization, duties and responsibilities, civil disturbance guidelines, and resource management in case of emergencies. Management authority and operations cover risks from hazardous chemicals, oil spills, explosions and radioactive materials, although some responsibilities are delegated to other agencies and private organizations with special capabilities when the need arises. The City Fire Department is party to mutual aid agreements with other jurisdictions in the eventuality that an emergency becomes more than one jurisdiction is capable of handling. Paramedic services constitute another major capability of the Fire Department for responding to accidents and injuries.

GOALS AND OBJECTIVES

Webster's Dictionary defines the term "goal" as "the end toward which effort is directed". The goals of this RMP with respect to risk management evolve from unsatisfied needs and desires which have been identified, declared, and addressed by various sources which have served to shape Port values and policies. These sources have been addressed to some extent in the Background section of this text. They include concerns expressed at federal, state, regional, and City levels of government.

The Coastal Act of 1976 is a primary source for goals, as are the declared policies of the City and the Port. Public concerns as expressed at various public hearings, at the Local Coastal Planning Committee meetings and at Port Master Plan workshops also have had an influence on the evolution of these goals. Thus, the goals of this RMP attempt to reflect the future states, conditions, and activities with respect to risk management toward which effort is to be directed in satisfying the wishes and desires expressed among these various sources.

Goals herein addressed are not only singular achievements as is implied by the term "end", rather, risk management goals are viewed as a series of end states linked into an ongoing process. This endeavor necessitates constant vigilance and preparedness. In effect, the ultimate goal of eliminating potential hazards remains unrealized, while the tentative goals of reducing hazards, maintaining safety and providing protection within tolerable limits may be repeatedly realized. Desired activities are included along with desired states as goals of the RMP.

The process of goal formulation is viewed as dynamic and flexible as is the process of realizing those goals. It is based on the perceptions of planners at the time of conception. Therefore, the goals which are presented here are not to be considered final, immutable or all inclusive. Rather they must be considered subject to adaptation and change as the perceptions of problems and needs for risk management evolve, and as experience, increased knowledge, and "feedback" are obtained to better define the means and the ends upon which goal formulation is to be based. Alteration, updating, deletion or additions of goals in response to changing circumstances within the Port must be considered as one of the primary goals of risk management, for without such flexibility how is it possible to continue to be prepared for new conditions or potential hazards which may emerge in the future.

Goals

The following non-exhaustive set of goals address the general aims for safety, protection and reduction of loss from specified real and potential hazards in and around the Port.

Information:

1. To promote, preserve and enhance public safety and welfare, and to protect public and private property, wildlife, marine fisheries, other ocean resources, and the natural environment generally from potential development hazards.
2. To inform public and private individuals, organizations and agencies of potential hazards, contingency plans, management procedures, and enforcement standards and measures with respect to risk management in the Port.
3. To encourage participation and cooperation between the Port and other agencies, organizations and individuals in the identification of real and potential hazards, and in the maintenance and preservation of safety in and around the Port.
4. To promote continued research, planning and development directed toward reducing the risk of specified potential hazards resulting from or impacting existing and proposed developments in the Port.

Planning:

5. To provide guidance for and coordination of staff organization, emergency planning, disaster functions, and response operations for the safety and protection of persons, property and natural resources in the event of a natural or artificial disaster.
6. To monitor Port uses and resources subject to loss due to specified potential hazards, and to maintain reasonably current inventories of such uses and resources, including both quantitative and qualitative descriptive values.
7. To draft prescriptive and performance criteria and standards as required for evaluating and reducing the risks of loss associated with Port developments.
8. To encourage the adoption of new administrative guidelines and legislative standards as required to improve risk management in the Port.

Management:

9. To manage Port uses and resources in a manner which will encourage and insure the reduction of, protection from and prevention of social, environmental, technological and economic losses due to specified potential hazards.
10. To regulate land uses in the Port which present significant potential hazards in order to attain a safer and healthier environment, while maintaining a reasonable level of economic progress and development consistent with international, national, state and local interests in the Port.
11. To apply relevant methods, techniques and tools of planning and management for the purpose of minimizing the risks of loss due to potentially hazardous Port operations and developments.

Enforcement:

12. To enforce and facilitate other pertinent agencies in enforcing existing codes and standards regulating the prevention, containment, reduction and elimination of real and potential hazards in and around the Port.
13. To provide continued surveillance and open communication channels in order to facilitate early identification and reporting on hazardous and dangerous conditions in the Harbor District.
14. To provide direct liaisons with other federal, state and local law and security enforcement agencies.
15. To collect and log information on hazardous cargoes, operations and conditions and to determine the responsibility and value for damages.

Objectives

The four categories of goals enumerated above on information, planning, management and enforcement, each will require a wide range of secondary efforts. For the purpose of this discussion these secondary efforts will be referred to as "objectives" which are necessary to achieve the more comprehensive goals. The following is a non-exhaustive list of objectives associated with risk management in the Port:

Information

General

1. To provide readily available information concerning the reduction and prevention of loss due to potential hazards in the Port.
2. To promote the necessity for immediate notification of hazardous occurrences to the Harbor Department and other pertinent agencies.
3. To facilitate prompt response to and containment of hazardous occurrences in the Harbor District.
4. To define the authorities, responsibilities, duties and interfaces of persons, organizations or agencies with regard to potential hazards and hazardous occurrences so as to avoid redundancy of efforts for regulation and control, and minimize potential conflicts and confusion which may be generated during an emergency.
5. To coordinate and cooperate with other political jurisdictions in implementing safety and disaster programs.
6. To promote the redevelopment of areas which may present safety problems.
7. To continue identifying existing or proposed uses or activities that may pose safety hazards.
8. To continue to inform the public of potential safety hazards and what to do in times of emergencies.

Natural Hazards

9. To support or undertake geologic research which evaluates the effect of earthquake hazards on development policy.
10. To determine areas which require special management or regulation because of hazardous or special conditions and to draft development and regulatory controls for minimizing the impacts of fire, meteorological, geological and hydraulic hazards.
11. To keep abreast of new information in the fields of geology, meteorology and hydrology to facilitate effective response to new knowledge and new developments as they apply to Port risk management planning.
12. To disseminate information on seismic meteorological and hydrological hazards and safety developed in the Port through

various modes of communicating including the media, public education programs, and citizen participation.

13. To promote measures and plans which protect and preserve distinctive types of wildlife, including birds, marine organisms and especially endangered species.

Artificial

14. To provide available information concerning the prevention of oil, gas and other hazardous liquid and solid waste spills into the waters of Long Beach Harbor from any cause or source.
15. To encourage immediate notification of spillage to Harbor Department authorities and other pertinent agencies.
16. To provide available information concerning fire prevention on vessels, docks, and in other Port facilities and operations.
17. To provide available information on explosive, radioactive and otherwise hazardous materials handled in the Port area.
18. To provide information on potential traffic hazards and available preventive measures with regard to vessels, trains, and vehicles.
19. To inform Port employees, operators, and relevant segments of the public of existing emergency plans and measures to be taken in case of a major natural, or artificial disaster, especially military or guerilla actions.
20. To keep abreast of the state of technology in the fields of diking, filling and dredging, especially with respect to minimizing disruption to wildlife, marine life and water quality.
21. To provide available information on oil and gas developments in the Harbor, and measures being utilized at present to prevent various hazards due to such development, including subsidence, oil spills, and water pollution.
22. To provide available information on potential hazards posed by petroleum and petrochemical facilities, power plants and other major industries in the Port and measures taken to reduce and to minimize these hazards.

Planning

General

23. To establish safety guidelines to evaluate specified potential safety hazards and mitigate existing problems which are identified.
24. To provide development controls, where feasible, to isolate areas with significant land use hazards from other existing and developed portions of the Port and the City.
25. To critically evaluate proposed developments which may pose safety hazards.
26. To eliminate undesirable elements which may be detrimental to the preservation and improvement of the unique qualities of the Port and the City.
27. To utilize open space planning as one strategy for protecting the public from natural or artificial disasters.
28. To apply safety considerations to planning as criteria for encouraging and enhancing desired land use patterns.
29. To achieve greater safety and protection from hazards through deliberate physical planning.
30. To plan transportation systems, utilities, industries, and similar uses in the Port in a manner consistent with safety and protection of people, property, and the natural environment.
31. To encourage development which would be less vulnerable to natural disasters.
32. To encourage development which facilitates prevention and emergency response activities.

Natural Hazards

33. To pursue programs and practices for dealing with unstable soil areas, land subsidence and soil erosion.
34. To plan for expansion of flood control of facilities where needed, while minimizing impacts on the natural environment.
35. To pursue programs and practices for the protection and enhancement of water and air quality.
36. To critically evaluate the impact of proposed public improvements on the possible erosion of City beaches.

37. To designate retention basins and other such technical measures for flood control as may be necessary and proper for the safety in the Port.
38. To cooperate with the City in development and management of a program for conservation of fresh water resources.
39. To work with the Department of Fish and Game, and other pertinent agencies in identifying, protecting and enhancing areas of biological significance within the Port, and minimizing the adverse effects of Port operations such as waste water discharges, entrainment, ground water depletion, diking, filling and dredging upon water quality and the natural environment.
40. To provide that new development be responsive to seismic considerations.
41. To give first priority to the recycling of older structures which do not adequately conform to current seismic codes and standards.

Artificial Hazards

42. To establish notification procedures which provide for optimum use of time between detection and containment of oil, gas and other hazardous discharges.
43. To identify and establish priorities for critical water use areas for purposes of reporting and response to hazardous spills.
44. To prepare lists of names, telephone numbers and addresses of persons, organizations and agencies to be notified in cases of various kinds of emergencies.
45. To establish reliable communication within the Port and between the Port and other operatives relative to emergency response, especially where existing lines of communication are not adequate.
46. To establish procedures for combining and coordinating assistance efforts as required with local, regional, state and federal authorities during a major disaster which is beyond the Port's response capabilities.
47. To identify the resource capabilities for various contingencies in the Port and make them immediately known to relevant authorities including:
 - a. An inventory of equipment, materials and supplies available locally and regionally.

- b. Assessment of facilities required to contain various potential hazards, especially oil spills.
- 48. To provide a set of procedures for response by the Harbor Department after discovery and notification of specified potential hazards.
- 49. To investigate the possibility of establishing open buffer zones around certain industrial uses, and between industrial and other uses in order to minimize potential safety hazards.
- 50. To encourage the development of new industries which reduce or offset gaseous emissions in the areas within and adjacent to the Port and to encourage existing industries to meet national, state and local ambient air quality standards.
- 51. To buffer hazardous activities, such as petroleum storage, production and distribution facilities, from other more sensitive land uses, where feasible.
- 52. To plan for consolidation of new or expanded oil and gas facilities within the Port to the maximum extent environmentally, functionally, and economically feasible and legally permissible.
- 53. To plan drilling operations on platforms or islands so as to minimize the impact on water quality, marine life, visual quality and other environmental risks.
- 54. To site platforms, land fills, or islands so as to avoid any substantial hazards to vessel traffic from the facility or related operations, and to consult with the Coast Guard and Army Corps of Engineers on such sitings.
- 55. To establish a basis for redevelopment of portions of the Port for the purpose of correcting land use blight, where necessary to promote public health, safety, and welfare, through the combined efforts of private enterprise and local government agencies.
- 56. To pursue programs for the safe, feasible and expeditious disposal of solid waste, including recycling of portions thereof.
- 57. To determine the feasibility of recycling waste water for fire control and other operational purposes.
- 58. To plan for safe and adequate access of fire-fighting and rescue vehicles with at least two directions of ingress and egress to structures and sites within the Port.
- 59. To limit the growth of hazardous types of industries.
- 60. To utilize fire safety factors as major criteria in Port development.

61. To buffer urban uses from routes designated for transportation of dangerous fluids, chemicals or explosives.
62. To restrict diking, filling or dredging within the Port to safe and prudent operations consistent with the Port Master Plan.
63. To plan dredging and spoils disposal so as to avoid significant disruption to marine and wildlife habitats and water circulation.
64. To plan, design and construct new or expanded tanker terminals to minimize oil spilled and risks of vessel collision, to provide ready access to effective oil spill containment and recovery equipment, and to provide onshore deballasting facilities, where feasible.
65. To evaluate the feasibility of installing emergency phones along portions of Long Beach Freeway within the Harbor District.
66. To determine critical routes of evacuation, and shelter throughout the Port area in case of major disaster.
67. To augment the existing system of communication for decision makers in case of emergency, as may be determined to be necessary by a feasibility study.
68. To involve Port Security, the Port Safety Officer, and the Police Department in project review at the planning stage to reduce and prevent crime in the Port.
69. To incorporate various tools and criteria for crime prevention in Port planning, including, but not limited to, improved street lighting, pedestrian path illumination, demolition of hazardous, condemned, and abandoned structures, promotion of high activity levels in centralized public areas, control of parking areas, especially night parking, and separation of vehicular, pedestrian and bicycle routes, where feasible.

Management

General Safety

70. To use safety precautions as one means of reducing and preventing blight and deterioration.
71. To protect existing land uses from the intrusion of safety hazards.
72. To reduce public exposure to safety hazards.

73. To reduce the potential adverse economic, environmental and social loss which could result from a major disaster.
74. To assure continued economic stability and growth while minimizing potential safety hazards.
75. To protect people from possible personal loss resulting from disaster events.
76. To assure the preservation of public and private property in the Port.
77. To continue to provide the maximum feasible level of public safety protection services.
78. To continue coordinating employee safety measures throughout the Port.
79. To adopt improved methods of insuring safety and security in the Port.
80. To update the Port Emergency Plan.
81. To incorporate new technology for public safety in the Port.
82. To maintain reliable communication within the Port and between the Port and other operatives for purposes of security and emergency response.
83. To effectively utilize natural or man-made features such as landscaping for increased public protection from potential hazards.

Natural Hazards

84. To continue to monitor areas subject to siltation and deposition of soils which could have a detrimental effect upon water quality and the marine biosphere.
85. To preserve areas which serve as natural habitats for fish and wildlife species, and which can be used for ecologic, scientific, and educational purposes.
86. To minimize activities which have a critical or detrimental effect on geologically unstable areas and soils subject to erosion.
87. To maintain and monitor communications on meteorology, flood warnings, water and air quality conditions.
88. To continue monitoring and simulation programs on water circulation in the Harbor and vicinity, such as the Vicksburg Model undertaken in conjunction with the Port of Los Angeles and the Army Corps of Engineers.

89. To protect environmentally sensitive habitat areas in the Port from significant degradation due to adjacent developments.
90. To maintain the biological productivity and quality of the Harbor and adjacent waters so as to preserve the optimum populations of marine organisms.
91. To minimize the adverse effects of waste water discharges and entrainment.
92. To protect areas required for ground water recharge to enhance fresh water quality and quantity.
93. To contribute to maintaining the quality of the waters of the Los Angeles River, Cerritos Channel, Long Beach Harbor and San Pedro Bay as high as feasible in order to enhance their value for man and the natural environment.

Artificial Hazards

94. To analyze bottom sediments or sediment elutriate for toxicants prior to any dredging or mineral extraction operations.
95. To deposit dredge spoils in open coastal waters at sites where potential adverse impacts on marine organisms can be minimized, or where dredge spoils can be isolated and contained, such as at approved sites in confined coastal waters.
96. To transport dredge spoils suitable for beach replenishment to appropriate beaches, where feasible.
97. To support efforts to redirect the use of land currently in mineral production as such minerals are depleted, consistent with public safety and protection of the environment.
98. To manage petroleum resources in the Port in a manner that will enhance the protection of the environment while maximizing the economic value of those resources.
99. To maintain an integrated and effective organization component to combat and minimize the effects of various emergency occurrences, such as massive oil spills in and about the Port.
100. To encourage the incorporation of new damage control features in Port structures which improve upon existing earthquake resistance requirements.
101. To encourage the undergrounding of powerlines where feasible to reduce the risks of powerlines falling from suspended locations in case of an earthquake.

102. To encourage and require developments or transportation modes which handle oil, gas, petroleum products, or other hazardous substances to provide protection in terms of effective containment and cleanup facilities and procedures for accidental or operational spills.
103. To periodically reassess the fire station layout in the Port with respect to development and operations and to determine whether new or relocated facilities may be required.
104. To control the levels of noise due to various Port related operations such as construction, shipping and boating, rail-road operations, oil production equipment, and other industrial equipment and facilities so as to keep noise exposure of the population within tolerable limits.
105. To provide personnel and equipment as necessary to maintain security and crime prevention operations within the Port with the cooperation of other pertinent agencies such as the Fire, Police, Emergency Services, and Public Service Departments of the City, the Highway Patrol, and the Coast Guard.
106. To pursue sources of support and fundings for various risk management activities and programs.

Enforcement

General Safety

107. To obtain vital services, supplies, equipment and such other properties found lacking and needed for the protection of the life and property of the people who visit or utilize the Port, and to insure that adequate funding can be obtained to cover the value of such protective devices.
108. To facilitate the requisition and enlistment into emergency services of any Port or City officer or employee, and to command the aid of as many citizens as necessary, consistent with the privileges, benefits, and immunities as provided by local, state and federal laws for such duties.
109. To assure continuity of safety measures for the protection of life and property.
110. To assure safe access to all non-restricted areas of the Port for the general public, including bicycle access from the City of Long Beach, where feasible.
111. To enforce and facilitate enforcement of City and Port regulations.

- 112. To investigate cases of vandalism, theft, illegal entries and any other incidents of significance to health, safety and welfare in the Port.
- 113. To coordinate enforcement efforts with other pertinent agencies as required.
- 114. To provide assistance in traffic control and crime prevention.

Natural Hazards

- 115. To enforce the recycling of pre-1933 buildings and deteriorated structures which may be subject to seismic hazards.
- 116. To require that sufficient seismic safety measures are built into new or expanded facilities in the Port.
- 117. To facilitate the enforcement of existing laws, rules and standards governing water quality of ocean waters, fresh water and groundwater in the Port.
- 118. To enforce and facilitate the enforcement of controls and ordinances regulating waste discharge from vessels in the Harbor area.
- 119. To enforce and facilitate the enforcement of laws and standards governing the reduction and destruction of species and habitats of biological significance in the Port.

Artificial Hazards

- 120. To enforce and facilitate the enforcement of safety standards and regulations governing dredging, diking, or filling and spoils disposal for these operations.
- 121. To inspect construction sites and enforce codes and standards with regard to construction hazards.
- 122. To inspect new and expanded projects in the Port in order to enforce, where necessary, safety regulations governing structural stability, fire access, occupational and operational hazards.
- 123. To require periodic training and mobilization exercises for personnel and equipment involved in the Emergency Organization of the Port.

124. To assure that penalties and fines for pertinent violations are assessed as required by codes and regulations governing such actions.
125. To facilitate the conformance with and enforcement of all applicable air quality standards for new or expanded Port facilities, especially facilities for the handling and storage of petroleum and petrochemical products.
126. To minimize the need for waste water discharges and entrainment in Port facilities due to once-through cooling systems, by using alternative systems, such as air cooling or treated waste waters from inplant processes, where feasible.
127. To inspect vessels and enforce their compliance with codes, regulations and standards governing safety, especially traffic safety, handling of hazardous cargoes, and spills of various materials.
128. To supervise the inspection of loss and damage to life and property, the determination of responsibilities and liabilities for these, the assessment of value for purposes of insurance and compensation, and the collection and/or dispersal of funds to cover equitable compensation.

RECOMMENDATIONS

The fundamental recommendation which emerges from the foregoing goals and objectives is that the Harbor Department shall consider the prudent, pragmatic and expeditious implementation of the goals and objectives of the Risk Management Plan. Each of the goals and objectives suggest risk management activities which have been found to be worthy of pursuit by various sources previously cited. The Board of Harbor Commissioners shall decide where the emphasis will be placed among these activities, whether to adopt, deny or conditionally approve them in whole or in part, initially or subsequently. The actions of the Board with regard to the goals, objectives and recommendations contained herein will thus determine the policies upon which the implementation of the Risk Management Plan will ultimately be based.

APPENDIX B

ORGANIZATIONS AND PERSONS CONSULTED

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1. Crow, Ellis, Principal Planner, Land Use Planning Division, Long Beach City Planning Department.
2. Cushman, Marge, Army Corps of Engineers.
3. Muslin, Daniel, Civil Engineer, Army Corps of Engineers.
4. White, Captain Walter W., United States Coast Guard.
5. Carpenter, M. J., California Coastal Commission staff, South Coast Region.
6. Whalin, Robert, Ph.D., U.S. Army Corps of Engineers, Vicksburg, Mississippi.
7. Surynt, Richard, Environmental Department, Army Corps of Engineers.
8. Taub, Captain Don M., United States Coast Guard.
9. Price, Rear Admiral Robert, United States Coast Guard.
10. Bodovitz, Joseph, Executive Director, California Coastal Commission staff.
11. Dadasovich, Mike, California Coastal Commission staff.
12. Ahern, Bill, California Coastal Commission staff.
13. Rote, James, Assistant to the Secretary of Resources, State of California.
14. Anderson, Larry, Port of Los Angeles.
15. Weir, Bob, Assistant Planning Director, Port of Los Angeles.
16. Paternoster, Robert, Director of Building and Planning, City of Long Beach.
17. Weiner, Alan, Senior Planner, City of Long Beach.
18. Schinazi, Louis A., California Regional Water Quality Control Board.
19. Espinosa, Larry, California Department of Fish and Game.
20. Moser, Andy, United States Fish and Wildlife Service.
21. Slawson, James, National Marine Fisheries Service.

22. Bellmer, Russ, U.S. Army Corps of Engineers.
23. Lee, Bill Y., California Public Utilities Commission.
24. Wendt, Captain R. A., United States Coast Guard.
25. Transportation Training Corporation.
26. Naughton, Aiden J., California Lands Division.
27. Common, Jim, Jacobsen Pilot Service.
28. Jones, J. E., Powerine Oil Company, Long Beach, CA.
29. Caso, Robert, Consultant, 121 Linden Avenue, Long Beach.
30. Eagan, Mary, 4500 Lakewood Blvd., Long Beach, California.
31. Seretan, Jules, Long Beach, California.
32. Bishop, Gilbert, Long Beach, California.
33. Hogan, Dennis, United States Army Corps of Engineers.
34. Bergman, Margo, Homeowners Downtown Association, Long Beach, California.
35. Atkins, Robert, United States Army Corps of Engineers.
36. Huddleson, J., California Water Resources Control Board.
37. Wiegman, Carl, Exxon Company, Long Beach, California.
38. Seeger, Tom, Naples Improvement Association, Long Beach, California.
39. Freel, Maeton, United States Fish and Wildlife Service.
40. Herron, William, Moffatt and Nichol Engineering, Long Beach, California.
41. Hettick, L. M., Long Beach Oil Development.
42. Schwinck, Bob, Long Beach Naval Shipyard Engineering, Long Beach, California.
43. Atwater, Jane, Naval Support Activity, Long Beach, California.
44. Peterson, Charles, Naval Support Activity, Long Beach, California.
45. Oguri, Mikihiro, University of Southern California, Los Angeles, California

46. Soule, Dorothy, University of Southern California, Los Angeles, California.
47. Briscoe, Dennis L., Dow Chemical Company, 3601 Dock St.
48. Hockney, Lester A., Jack Bryant and Associates, Long Beach, California.
49. Smith, Gary F., Atlantic Richfield Company, Los Angeles, California.
50. Arundel, Frank, Long Beach Citizens Involved.
51. Hurst, W. Calvin, Environmental Analysis Office, Los Angeles Harbor Department.
52. Derry, D. W., Shell Oil Company, Houston, Texas.
53. Skipper, Peter, Los Angeles Audubon Society.
54. Springer, Frank G., Captain, USN Retired, Long Beach, California.
55. Mayfield, Norma, League of Women Voters, Long Beach, California.
56. Polons, Jack, Costa Mesa, California.
57. Cornish, Loren T., Director of Port Administration, Long Beach Harbor Department.
58. Hartmann, William A., Port Safety Officer, Long Beach Harbor Department.
59. Seufert, George N., Director of Port Maintenance, Long Beach Harbor Department.
60. Porter, Gery, Deputy Chief Harbor Engineer, Long Beach Harbor Department.
61. Zetterberg, Adolph, Assistant Director of Port Operations, Long Beach Harbor Department.
62. Kato, Minori, Chief Wharfinger, Long Beach Harbor Department.
63. Danaher, Thomas, Chief Security Officer, Long Beach Harbor Department.
64. Leslie, R. E., Assistant Chief, Long Beach Fire Department.
65. Sanders, James B., Deputy Chief, Long Beach Fire Department.
66. Smith, Floyd O., Captain, Bureau of Fire Prevention, City of Long Beach.

67. Rhoads, Larry, Bureau of Crime Prevention, Police Department, City of Long Beach, California.
68. Peterson, Evar P., Coordinator, Emergency Preparedness, City of Long Beach, California.
69. Eby, Jon N., Administrative Assistant, Emergency Preparedness, City of Long Beach, California.
70. Scherb, Mory, California Coastal Commission.
71. Wheatley, Stan, MarAd/NMRC.
72. Reese, W. Phillip, John J. McMullen Associates, Inc.
73. Mara, Tom, Mara-Time Marine.
74. Jacobson, Bernie, Environmental Control.

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